

[OCT. 3, 1868.]

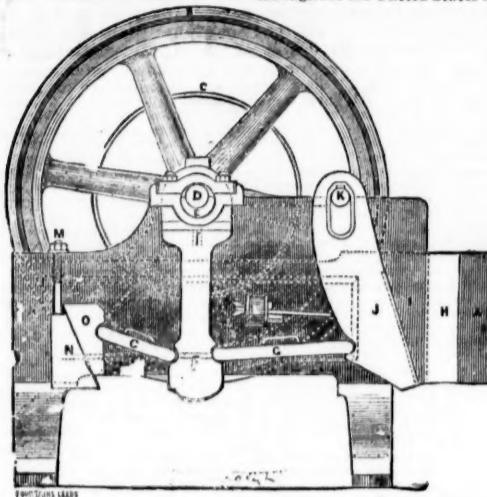
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The Parys Mine Company, Parys Mines, near Bangor, June 6.—We have had one of your stone breakers in use during the last twelve months, and Captain Morcom reports most favourably as to its capabilities of crushing the materials to the required size, and its great economy in doing away with manual labour.

For the Parys Mining Company, JAMES WILLIAMS.

H. R. Marsden, Esq.

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Alkali Works, near Wednesbury.—I at first thought the outlay too much for an article, but now think it money well spent.

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WM. G. ROBERTS.

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MEADOW LANE, LEEDS,
ONLY MAKER IN THE UNITED KINGDOM.

CAUTION!

BLAKE'S PATENT STONE BREAKER,
In Chancery.**BLAKE v. ARCHER, NOVEMBER 12, 1867.**

His Honour the Vice-Chancellor Wood having found a VERDICT in FAVOUR of the PLAINTIFFS in the above Cause, establishing the VALIDITY of BLAKE'S PATENT, and made a DECREE for an INJUNCTION to RESTRAIN the DEFENDANTS, Messrs. THOMAS ARCHER and SON, of Dunston Engine-Works, near Gateshead-on-Tyne, from INFRINGING such PATENT, and ordering them to pay to the Plaintiffs the costs of the Suit.

ALL PERSONS are hereby CAUTIONED against MANUFACTURING, SELLING, or USING any STONE BREAKERS similar to BLAKE's, which have not been manufactured by the Plaintiffs. Application will forthwith be made to the Court of Chancery for INJUNCTIONS AGAINST ALL PERSONS who may be found INFRINGING BLAKE'S PATENT after this notice.

SOLE MAKER IN ENGLAND,

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PARIS EXHIBITION, 1867. SILVER MEDALS, CLASSES 40-51.

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THE

PATENT PLUMBAGO CRUCIBLE COMPANY,
SOLE MANUFACTURERS UNDER MORGAN'S PATENT,
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The capabilities which have now for more than twelve years distinguished these Crucibles are:—

Their quality is uniform. They withstand the greatest heat without danger. Their average durability for Gold, Silver, Copper, and other ordinary metals is forty to fifty pourings, in some cases reaching one hundred. They never crack, and heat more rapidly than any other kind. One annealing only is required. Change of temperature has no effect. They can when hot from the furnace be dipped in cold water with safety. The saving of labour and metal is very great. (Messrs. BREEDEN and BOOTH, Birmingham, testify to the saving of 1 ton 2 qrs. 21 lbs. 4 ozs. of metal in melting 73 tons 6 cwt. of brass.) In Steel Melting the saving of fuel has been demonstrated to amount to a ton and a half to every ton of steel fused. For Zinc they last longer than iron pots, and save the great loss which arises from mixture with iron. Those for Malleable Cast-Iron show an average working of seven days, doing each day nearly double the work of any other crucible.

As these crucibles last much longer than any others, it follows that the saving of metal must be great, because to each worn crucible a quantity of metal adheres. In fact, comparing these with other crucibles, the saving of metal and fuel alone is more than equivalent to their cost.



A are made in sizes varying from 2 ozs. to any required capacity, and are marked by the quantity of kilogrammes they will contain; thus No. 100 will contain 100 kilogrammes.

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Respectfully begs to inform Mine Managers, Surveyors, Engineers, &c., that having purchased Mr. Wilton's business, and the very valuable acquisitions and appliances belonging thereto, he has enlarged his Mathematical Instrument Manufactory, and is prepared to supply THEODOLITES, DIALS, POCKET DIALS, LEVELS, TRAVERSING and PLAIN PROTRACTORS, CASES of DRAWING INSTRUMENTS, MEASURING CHAINS AND TAPES, ASSAYERS' SCALES and WEIGHTS, ENGINE COUNTERS, and in short, every description of Instruments used in SURVEYING, MEASURING, MAPPING, &c.

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WILLIAM SLATER, Managing Director.

Original Correspondence.

SUMMARY OF LETTERS ON THE LABOUR QUESTION.

SIR.—A few general deductions and reflections will close and sum up the results of this series of letters. It is manifest that there is no hope for any Trades Union, however wisely and comprehensively planned, working well, unless its leaders and managers have a fair share of honesty and ability, and its members know what are really their true interests, and are earnest in their efforts to carry out each in his allotted place and sphere, and to the best of his ability, the directions of their managers for the common good—working in a spirit of cordiality and agreement. The best institutions are fruitless in producing good—nay, will often, on the other hand, work evil, if administered by idle, selfish, unscrupulous, or incompetent hands. Hitherto the oppressions noticed in the first of these letters have stamped their character upon Trades Unions. Originally under the ban of the law, fighting the battle of men bowed down by unfair legislation, they were almost forced into extremities of hostility against their employers generally, and of coercion of their fellow-workmen, often flinching from no deed, whether of crime or danger, which appeared absolutely required to insure their success. But now, when the workers have attained their proper position and influence in the community, longer adhering to these noxious principles, and submission to the unworthy leaders enforcing them, would prove the members to be wholly unworthy of the confidence reposed in them, and of the franchise lately granted to them. No man can be trusted to join in making laws affecting the liberties of others who cannot guard his own, and who submits to the tyranny of a Union too often little, if at all, better in its working than the camorra which grinds the Italian lazzaroni to the lowest depth of poverty and suffering. Let our working men be no longer kept down by some of the worst of their order. Let them call to their head and follow those who, from knowledge, sagacity, and good character, are really able to guide them aright. Above all, let them rest well assured that no present relief or lifting up in the future can in any way be obtained for them from such dreamy folly as was vented in the Brussels meeting of the International Congress of Working Men.

Putting aside for the moment all discussion as to the right and justice of remodelling society and redistributing property, they cannot but see that the thing is an utter impossibility, such as could only have entered into the heads of insane theorists and crackbrained riders of their own hobbies, who have lost all power of distinguishing between their castles in the air and actual realities. Truly, if the working men are to wait until any help reaches them from this quarter they may make up their minds to remain as they are, in the forcible phrase of the Yankees, "from July 'till eternity." As little can they expect any sufficient help from co-operation. Let those who believe in it by all means try it out fairly, and let us wish all good fortune to their experiment. But if it is at all extensively adopted there will assuredly be far more failures than successes in these societies, proving that they can never replace private enterprise, or abolish masters as a class, or in any way materially affect their relation to the workpeople they employ. It may be counted upon as an actual certainty that the wheels of social intercourse will continue to run on pretty much in their old grooves, and employers and employed remain for our time, and that of our children after us, to work together and settle their mutual intercourse by argument or difference, as they have heretofore done. This being so, their best hopes will be found in that general prosperity of the country which alone can pay good wages and profits, and in their own intelligence and education, with the aid of good Trades Unions, on the basis of mutual good understanding for securing prosperity to the masters, and to workmen the best wages their trade can afford, with every attainable comfort in their work, as well as in their homes.

We are approaching a critical point in the productive and manufacturing history of our country. The very blessings which increase the wealth of all our customers—continuance of peace and comparatively good government over a large part of Europe—help to bring a number of competitors forward to strive with us for the lead we have so long held in manufactures and trade—many of them from quarters hitherto wholly unnoticed. I have full confidence in the power of the combined capital, skill, and energy of my countrymen to keep the field against all rivals, if they only allow themselves something like fair play, and do not needlessly carry heavy weights in the race. These qualities and advantages ought to secure us something like a natural monopoly of the highest class of work always commanding the highest rate of wages; leaving all work of the lowest kind, with the lowest wages, to be taken by our foreign competitors, where they succeed in depriving us of anything. But to make this position safe, our working class must avoid, by turbulent and ill-considered interference and unreasonable demands, making this best work so uncertain and expensive as to invite the attempts of other nations to rival and underbid us. Here has hitherto been the great error of the Trades Unions of our workmen. Had they wisely read the signs of the times, they would not, by ill-considered demands and strikes, have driven away (as was done with the iron shipbuilding of the Thames) important branches of manufacture, yielding high wages, which, once lost, very rarely return to the place they have left. In this instance we see too mournfully what wide-spread pauperism and misery this fatal error has caused. Let the Unions learn wisdom from this sad example, and let all their actions and regulations be devoted to securing for good workmen the best wages the trade can afford, and rest content with these. Let them, to keep these wages at the highest point, keep well up the high standard of English work. If there is glut of labour, and numbers have to be thinned by emigration, let the lowest class of workmen go—if any go—at the expense of the Unions; this is their only chance for permanently securing high wages. Their present policy can only end in driving the best paying manufacturers away; and, finally, leaving them worse off than they are at present, whereas if they can only be wise in time, and profit by the improvements of the age, they have before them the fair prospect of such a state of well being and comfort as has never hitherto been enjoyed by English workmen, even in the best times of which we have any record. Amply shall I feel myself paid for the thought and time I have given to these letters if anything here written tends to such a happy result. They have many amongst them, and around them, well able to impart the fruit of sound practical knowledge; many, who having by sheer ability and energy raised themselves in the world, do not desert the working class from which they sprung, but devote their time and talents to the efforts to raise those yet beneath them a few steps up the ladder. Amongst these, Mr. John Plummer merits honourable mention, for the devotion of his time and talents to benefit and elevate the working classes.

Perhaps some may say I have fixed the standard of Trades Unions too high, and exacted more from them than they can ever be expected to perform. But it is only by continual effort to rise as near as possible to perfect excellence that much improvement is ever made. If the whole of the ideal is not reached, every step towards it is so much absolute gain. Where there is much well-directed endeavour there always will be some success.

A word in conclusion to the masters. We have spoken out plainly as to the extent to which they have too often given their men just reason to complain. Indeed, many of their body have themselves to thank for most of the evils Trades Unions have inflicted on them. It is, however, a pleasure to think that there are many—we trust very many—amongst them of a widely different stamp, who are in every sense the best friends of the men they employ. But even these have stood too much alone—divided as a class, each going his own way. This will not do in these times. The combinations of workmen must be met by counter combinations of masters—not in a spirit of hostility, but of friendly intercourse. It is impossible to reap the full advantage of a spirit of conciliation until there are organised bodies on both sides to reason and treat with one another. And let masters never forget that it is futile to expect their workpeople to be contented and reasonable unless they are treated with even something more than perfect fairness. Without some liberality and courtesy towards those whom they employ, masters can never have that influence which often prevents discontent and reductions caused by the necessities of bad trade from breaking out into unreasonable dispute and quarrelling. At such times workmen too often sum up and remember all the griefs against their masters that have long rankled in their minds, and are prepared

to put the worst construction upon everything. Moreover, all that has been said about the necessity of good special education, and keeping up the high character of English work and manufactures, applies, as has been before remarked, perhaps even more forcibly to the masters than to their workpeople, if our country is to maintain her leading position in these days of unrestricted competition.

I am well pleased to see by the Journal of Sept. 19 that the iron-workers of Staffordshire have wisely avoided the error I warned them against of asking an advance before the improvement in the trade is fairly established, and follow the prudence of their masters, who have not yet raised their prices, and that they adhere to their policy of seeking to settle all disputes by conciliation and arbitration. These are good signs, and their masters will show sagacity if, without waiting for any pressure, they fairly of their own accord concede to their men any improvement in the conditions of their work that they can afford as soon as the trade will bear it. A few instances of such considerate treatment would go far to give their workpeople such confidence in their fair dealing as would put an end to all possibility of future strikes and quarrels.

Last week's Journal also brings me a friendly notice from Mr. S. Jenkins, for which I thank him. It is some comfort to be encouraged by the hope I may have, to some extent, profited, and not wearied, your readers by this series of letters. I notice his remarks on points of detail, but have all along rather dealt with general principles, eschewing all officious advice as to what each body of masters and men ought to be able to settle better for themselves than any third party can for them, as every man may be presumed to know his own business best. But it will give me much pleasure to answer through your columns any enquiry as to any particular case or matter to the best of my ability for all who attach any importance to my opinion. I should like to see in your pages a summary of the paper Mr. Jenkins read at the Norwich meeting "On the Festiniog Slate Veins."

Though this letter concludes my weekly series, I may now and then recur to the subject in your columns, remarking upon any matter of interest that may arise from time to time, especially the approaching discussion at the Social Science meeting.

London, Sept. 29. — A MAN OF EXPERIENCE.

COPPER SMELTING NEAR LIVERPOOL.

SIR.—As the *Mining Journal* has a wide circulation it is the best medium for correcting what appears in it not in accordance with the facts of a case, and I, therefore, hesitate not to beg room for the following. In last week's Journal there appears an article, headed "The Copper Trade," and its object, without doubt, is to raise Swansea at the expense of Liverpool, but the writer either knew nothing about Liverpool or wrote to mislead. It so happens that there are no proper works in or near Liverpool, and the report of the Liverpool Corporation having taken up the smoke matter, &c., is all "bosh." At St. Helen's, twelve miles distant, there are six or seven important copper works, and here some actions have been brought against smelters, but chiefly in consequence of a decision in the County Court; but one of the smelters, thinking this decision not what it should have been, resisted a claim, that the point might be tried and settled by the Judges at the Assize. The trial has just come off, and Mr. Justice Hanmer ruled quite the reverse of that of the County Court Judge; and this, of course, is in favour of the smelters. So far in rectification; and, in conclusion, I may remark that three or four of the wealthiest smelting firms in the kingdom have their works at St. Helen's; and at the *Liverpool Ticketings* for ore the leading *Swansea firms bid*; so that Liverpool is in no way inferior to, but has many advantages over, Swansea for the importers of copper ore. The Swansons inhabitants, it appears, welcome all smokes and smells and poisoning of the atmosphere; but the Liverpool Corporation is active in checking all such nuisances in the town. A SMELTER.

Liverpool, Sept. 29.

RECENT GOLD DISCOVERY IN NEW ZEALAND—NO. V.

SIR.—My correspondence to you upon this most important event in the Antipodes has no doubt called up many thoughts from enterprising individuals in this country; and one thing certain is, that looking over all the different quarters of the globe, the recent gold discovery in New Zealand must pale even other modern auriferous field. My remarks in my series of four letters to you has been this week fully confirmed by the *London Times* and *Daily News*. The following extract from a private letter, dated Aug. 1, speaks volumes for the Hauraki or Thames Gold Field. The writer says:—

"The newspapers will tell you what we have done during the last fortnight, so that I need only add that this claim (Hunt's) turned out over 5000 ozs. of melted gold as the result of four days' crushing; and, on the whole, the second week's work shows no falling off. The Panama steamer, leaving Auckland on Aug. 3, will take about 10,000 ozs. from this claim alone, to be forwarded to the Union Bank, in London, and this the result of 12 days' crushing. Of course, we cannot expect to keep up this amazing yield, but even if it should be reduced to 1500 ozs. a week, that will allow of a satisfactory dividend. The price of the Thames gold is low, in consequence of the admixture of silver, so that about 2l. 16s. an oz. is all we get at present. The machinery, kilns, furnaces, and shops shall be obliged to work only four stampers for want of water to drive more. The steam-engine is of 20-horse power, and takes a great deal of water. We must deepen the well, and if that does not suffice erect a water-race for two miles from a neighbouring creek. Fifty hands are constantly employed at high wages. Hitherto everything has gone on smoothly."

I think this is quite as satisfactory as the most sanguine could wish, and, moreover, more than bears out my dissertation on Hunt's or the great claim, in my letter (No. II.) to the *Mining Journal* of Sept. 12. I have no statistics before me to give any yield approaching that of Hunt's claim in either California or Australia. How many of the wild cat schemes that have been recently brought out here would delight in having their one or two years' operations giving results of the few days' working only of the New Zealand mines. J. E. SMITH,

Oct. 2.

Her Majesty's Civil Service.

MINING IN THE CALLINGTON AND CALSTOCK DISTRICT.

SIR.—For some weeks past you have kindly furnished us with information as regards the prospects of mines on the south side of the range of hills known as Kit Hill and Hinstone, in the parishes of Callington and Calstock; and, as a resident in the district, and intimately acquainted with the mines, especially South Prince of Wales, I feel a pleasure in being able in many respects to confirm the statements kindly offered in their favour, and I may assure you, from the quantities of mineral sold mostly to the Cornubia Chemical Company (whose works are established in their set), and from their financial position, the South Prince of Wales only requires to be known to be appreciated by the investing public. But while I believe the south side of this range of hills to be well worthy of the attention of all connected with mining, the north side is even more so, because the mineral to pay large dividends is already laid open. In some instances, and only requires the erection of the necessary machinery to make them properties second to none in the county. The property I more particularly refer to is that which has been lately commenced under the title of the East Cornwall Consolidated Mines, and which comprise the Holmbush and Kelly Bray Mines. I believe everyone who knows anything of Holmbush is prepared to admit that from adit to the 80 fathom level there is laid open immense quantities of copper muriatic, valueless when these levels were driven, but a valuable mineral now, when the little labour required to dress it is considered, and the immense demand there is for it. I am informed that the Cornubia Chemical Company has entered into a contract to take the whole of the muriatic raised at these mines at a price per unit of arsenic that will leave a large margin for profit; and after making every reasonable deduction I believe 7500 worth of mineral per month can be raised, at a cost of 5000. Then, in the Kelly Bray part of the set, they are now driving upon a side lode discovered in the adit level, worth, according to the valuation of the Duchy agent, 25/- per fathom, and, as they approach the great cross-course, materially increasing in value, with every appearance of making an immense deposit of ore; and this lode, so far as is known, is all in whole ground. With your permission, I will continue my remarks on this district in next week's Journal.

C. P.

CHONTALES GOLD AND SILVER MINING COMPANY.

SIR.—However much more promising the affairs of this company may appear now than latterly, it would, I do not doubt, be satisfactory to others than myself to understand how the directors account for it that we never hear anything now of those very rich ores that they told us of in their original prospectus. Although they therein told us of ores—that is to say, of samples—yielding 100 to 200 ozs. of gold to the ton, they now seem to think it a great matter if we get half an ounce to the ton.

Can you, Sir, or any one of your numerous readers, inform us whether these enormously rich ores are being diligently sought for, or whether the directors have given up all hope of being gladdened by their appearance? It will be remembered that, according to the original prospectus, Capt. Francis sent home 45 samples of ores, yielding on assay, some of them, as high as between 100 and 200 ozs. to the ton, and on an average 20½ ozs. Now, of course, the directors believed these samples to be bona fide representatives of bulk, or they could not have put them before the public, in order to induce applications for shares. Nor is it conceivable that Capt. Francis should have just scrambled up, haphazard, handfuls of prodigiously rich ore in several different parts of the mines, leaving behind, immediately surrounding, nothing but rubbish, comparatively speaking. The directors, then, must either believe now that they were deceived by Capt. Francis in the matter of these samples, or they must believe that the said prodigiously rich ores are on the mines waiting to be dug up; in which latter case it is to be hoped that they will no longer waste their energies and resources upon

every comparatively trumpery ore that may present itself, but set to work to discover the vast riches that must be beneath the surface. Why, Sir, one of the lodes represented by one of Capt. Francis's samples might repay us all that we have spent. I hope that some one connected, or failing that, one of your numerous readers, will enlighten us upon the points touched upon.

London, Sept. 30.

AN ORIGINAL SHAREHOLDER.

PRACTICAL ASSAYING.

There is, probably, no branch of science upon which the pecuniary success attending the development of our mineral wealth is more dependent than that which includes practical assaying; yet its study has been very much neglected by miners generally, and the number of works published upon the subject have, consequently perhaps, been by no means numerous. Until the issue of the "Manual of Practical Assaying," by the late Mr. JOHN MITCHELL, the student had only the technical literature of France and Germany to guide him, and as he was fortunate indeed if he possessed even an elementary knowledge of the languages in which the works were written, it will readily be understood that in by far too many instances he was entirely powerless to profit by the researches of others, and had to content himself with the application of his own dearly-bought experience. For some years past, however, Mr. Mitchell's work has enjoyed an enviable position as a text-book for assayers—the second edition, which it must be admitted, had become somewhat antiquated, having recently been exhausted. The volumetric process of analysis was in its infancy when Mr. Mitchell wrote, and even what was known of it was regarded with suspicion, or at least not fully appreciated, by assayers, and hence we find comparatively slight reference made by him to that which is now generally regarded as the branch of assaying essentially valuable in connection with industrial operations. The third edition of the work * has now been issued, and certainly appears to supply all the information that is at all likely to be required in practice.

Volumetry and colorimetry are treated of exhaustively, and the subject of blow-pipe assays has also received a larger amount of attention; and it will be gratifying to a large number of those for whom the work is intended to learn that the old equivalents have been retained, because, as Mr. Crookes very truly remarks, they are more generally understood by students of science who do not make chemistry their chief study. In the new work, the latest Continental improvements mentioned in Prof. Kerl's "Praktische Metallkunde" have been incorporated, as well as the more important descriptions of processes contained in Mr. Sutton's admirable work on Volumetric Analysis. Except that the general arrangement has been retained, the present edition might almost be regarded as a new work—much of the original matter having been entirely re-written, and the size of the book being nearly doubled. To many the arrangement which Mr. Mitchell adopted is well known, yet it may be well to mention that it is a thoroughly practical one—just enough information with regard to chemical nomenclature and the theory of salts, the laws of combination, chemical symbols, &c., being given to enable the student thoroughly to comprehend the instruction subsequently given. With regard to actual assaying, the description commences with the preparation of the sample, whence the reader is gradually and systematically led through all the subsequent operations—such as chlorination, washing, dressing, vanning, weighing, calcining, roasting, reducing, dissolving, and amalgamating. A chapter is then devoted to the production and application of heat, and there is an admirable chapter on reducing, oxidising, desulphurising, and sulphurising agents, the study of which would, no doubt, afford material to practical men who may be desirous of improving or perfecting the processes they may be using in their ordinary course of business. The explanations given in the seventh chapter of the nature and applications of various reagents used in the course of qualitative and quantitative analysis leave little to be desired; and the same may be said with regard to the succeeding chapter on the blow-pipe.

But when we come to the chapter on volumetric analysis, there certainly seems a slight omission which, although it could have been easily supplied by a scientific chemist, will be severely felt by practical men who take the book, as they certainly might, for ponderal analysis as their almost only guide. In volumetric analysis (unless it be practised by those who are sufficiently well acquainted with the higher branches of chemical knowledge to judge of the applicability or inapplicability of any given volumetric process to the particular ore or other substance under treatment) it is essential that the manipulator should be informed of the means of separating the several metals belonging to a single group before commencing the volumetric estimation—or failing that, it should have been at least stated what particular kind of substances the several processes are applicable to; yet upon neither of these points is the information of a very copious character. There are many processes given in Mr. Sutton's book, and transferred to this, which give accurate results only in the absence of certain antagonistic elements; yet the mode of removing these elements is not fully described. Of course, it may be said that the lucid descriptions of the nature and action of reagents given in other parts of the book will give the student the power to exercise his judgment in the matter; but it is not every student who can help himself to that extent. He may know that it is precipitated with sulphured hydrogen from an acid solution, separates the precipitate, digests it in sulphide of ammonium, and separates the residue, his solution will only contain salts of tin, antimony, arsenic, platinum, gold, and of some other metals of no especial industrial interest; but he will need assistance to enable him to separate the several sulphides from each other—say, antimony from tin, or arsenic from antimony. It is the want of this information in a sufficiently tangible form—for, no doubt, it may, at least from the work now under consideration, be obtained indirectly by careful reading—that has caused practical men to complain of their failure to obtain reliable results from working with Mr. Sutton's book, and it is to be feared that from this, perhaps trifling defect the present volume is not altogether free; it is one, however, which can be compensated by a little extra reading, so that too much importance should not be attached to it.

Taking the third edition of "Mitchell's Manual of Assaying" as a whole, it is unquestionably calculated to add to Mr. Crookes' already high reputation as an analytical chemist; his object has evidently been to supply a work of the utmost utility, rather than to display his vast scientific research, or to propagate his favorite or doubtful theory of his own, and this object he has fully attained. His book is one which may safely be taken as a guide by purchasers of ores, by assayers, and by a large number engaged in the industry of chemical manufacture. It is the well-known standard work, modified and improved to meet present requirements.

* "A Manual of Practical Assaying." By JOHN MITCHELL. Third edition. Edited by WILLIAM CROOKES, F.R.S. London: Longmans, Green, and Co.

SOCIETY OF ENGINEERS.—The annual volume of Transactions—
that for 1867—has just been published by Messrs. Spon and Co., of Charing Cross, and contains an unusually interesting collection of papers, comprising—Experimental Researches into the Nature and Action of Safety-Valves for Steam-Boilers, by Thos. Baldwin; on Certain Methods of Applying Screw-Pipes in the Construction of a Wrought-Iron Girder Bridge at Verona, by John G. Horner; on Water, and its Effects on Steam-Boilers, by H. K. Bamford; on Pumping-Engines for Town Water Supply, by Henry Davey; on Water-Tube Boilers, by Vaughan Pendred; on the Quality of Iron as now used, by Ewing Matheson; on Mechanical Saws, by S. W. Worssam, Jan.; on the Connection between the Shape of Heavy Guns, and their Durability, by Arthur Etzg, Jan.; and on the Most Recent Improvements in the Injector, by James Gresham. The volume also contains an account of the Society's visit to the Paris Exhibition, and a very large number of admirably executed Iithographs to elucidate the several papers. During the year to which the Transactions relate the Society has acquired the rights and privileges of a corporate body by registration under the "Literary and Scientific Institutions Act," 1854; and, as the council now consists of gentlemen of considerable practical experience in connection with engineering works, it may be hoped that the well-founded prosperity of the institution will continue to increase. Even as a work of reference alone the Transactions are well worthy of a place in an engineer's library.

GOLD IN NEW ZEALAND—EXTRAORDINARY RESULTS.—The New Zealand papers contain an account of the results of working by steam machinery on the one quartz claim, known as the "Pioneer claim," at the Auckland gold fields. The yield of 1500 ozs. was obtained from 16 hours' crushing with four heads of stampers, and in four days the out-turn was 5307 ozs. Annexed are the particulars:—"The machinery in connection with the Pioneer claim is at the Auckland gold fields was started yesterday, and the golden ore of its fortunate proprietors (Messrs. Hunt and party) may be said to have fairly set in. The whole battery was started about noon yesterday, with the poorest stuff on the claim, in order to fill up the boxes, and give the richer quartz and the battery a better start. After several hours' work at this, eight heads of stampers were lifted, and the single set of four heads filled with specimens mixed with inferior stuff. When the battery had been at work two hours the stamper box had become overheated with amalgam, and the second battery was started to relieve it. Two hours afterwards the person feeding at the hopper at the back of the machine found that he could not get the quartz into the stamper box, and called to the engineer to stop the machinery, under the impression that something was going wrong. On examination, it was found that the opening where the quartz is put in was thoroughly stopped up with amalgam, and nearly 1

Government Inspection of Coal Mines.

THE INSPECTORS' REPORTS.

The reports of the several Inspectors for 1867, as well for coal mines as for the mines of ironstone or the coal measures, have just been printed, and although the actual number of deaths is smaller by 294 than in 1866, the apparent improvement seems to result merely from the great event of the year—the Ferndale calamity—not having been equal to the Oaks and the Talke-o'-th'-Hill, and not from any general improvement in connection with colliery working. As observed in commenting upon a former report, it appears that taking the average for a number of years (and excluding the one or two great accidents which occur each year) the results are almost uniform. The number of separate accidents is nearly equal, and every five accidents cause six deaths. We subjoin our usual tabulated summary, which will permit of the fatality of the several classes of accidents being compared:

COAL MINES—1866.

	Separate Accidents.			Deaths Resulting.		
	Explosions of Fire-damp.	Falls of Roof and Coal and Sides of Working.	In shafts.	Explosions of Fire-damp.	Falls of Roof and Coal and Sides of Working.	In shafts.
	Miscellaneous, underground and at surface.	Total.	Miscellaneous, underground and at surface.	Total.	Total.	
North Durham, Northumberland, Cumberland districts.	3	30	9	49	91	4
Southern division of Durham.	2	23	11	48	84	28
North and East Lancashire.	9	19	8	58	13	25
West Lancashire and Nth. Wales.	11	34	16	44	105	53
Yorkshire district.	4	29	17	11	61	364
Derbyshire, Nottinghamshire, Leicestershire, and Warwickshire.	6	25	5	19	55	7
North Staffordshire, Cheshire, and Shropshire.	9	11	10	17	47	142
South Staffordshire & Worcester.	11	46	24	15	96	14
Sou.-West. Div. (parts of Monmouth, Glos., Glamorgan, Brecon, and Devon).	5	38	18	14	75	6
South Wales district.	48	15	42	113	13	49
Eastern district of Scotland.	4	10	6	9	29	5
Western district of Scotland.	2	26	13	2	43	2
Total.	71	345	153	288	857	651
COAL MINES—1867.	361	162	162	310	1484	

circumstances under which the several accidents happened. The reports also supply many valuable suggestions and particulars relating to colliery working generally, extracts from which we subjoin.

LOSS OF LIFE IN ENGLISH AND BELGIAN COLLIERIES COMPARED.

—In his report for the South Durham district, Mr. ATKINSON gives an interesting comparison of the casualties attending coal mining in England and in Belgium, which shows that whilst in England we raise 85,681 tons of coal for each life lost in Belgium, which has so frequently been pointed to by English writers as the model of excellence, they sacrifice one life to raise only 42,330 tons of coal, or in other words that coal mining in Belgium is twice as dangerous as in England. In the South Durham district the deaths, for a given quantity of coal raised, are only about one-fourth as numerous as in Belgium. The deaths from explosions of fire-damp in the mines of Great Britain are shown to have been only 80 per cent. of those in the mines of Belgium, and in this district only 13 per cent. of those in Belgium, for a given quantity of coal raised. The deaths from falls of coal and roof in the coal mines of Great Britain are shown to have been less than 63 per cent. of those in the coal mines of Belgium, and in the South Durham district little more than 31 per cent. of those in Belgium, for equal quantities of coal raised. The deaths from shaft accidents in Great Britain only form about 28 per cent., while those of the South Durham district are less than 12 per cent. of the deaths from the same class of accidents in Belgium, for equal quantities of coal raised. The deaths from miscellaneous accidents in and about the collieries of Great Britain are shown to have been less than 44 per cent., and those of the South Durham district only 47 per cent., of those in Belgium, for equal quantities of coal raised.

These results are all favourable to the mines of Great Britain, when compared with those of Belgium, and that for the most part in a very high degree, and, in general, more especially so as regards the South Durham district. But it may be remarked that in the Belgium collieries there are more persons employed, in proportion to the quantity of coal raised, than are employed in Great Britain, owing to the average thickness of the seams of coal being much less in Belgium than in Great Britain, combined with other causes, and that there are, in consequence, more persons exposed to the dangers of the mines in Belgium than in Great Britain, in proportion to the quantity of coal raised; and this will, to some extent, assist in accounting for the higher proportion of lives lost in Belgium than in Great Britain, in proportion to the quantity of coal raised. There are, probably, upon an average, about two and a half times as many persons employed in and about the Belgian collieries, for a given quantity of coal raised in a given time, as are employed in and about those of Great Britain, to raise the same quantity of coal in the same time, so that, if a comparison were made, based entirely upon the relative numbers of persons employed, it would be found that there are fewer deaths in proportion at the Belgian collieries than at those of Great Britain, more especially from explosions of fire-damp, and considerably fewer from falls of coal and stone, and miscellaneous accidents. And our British coal mines, taken as a whole, would only show a less degree of fatality to life than those of Belgium in the single class of shaft accidents, by this mode of comparison. But if the collieries of Belgium were, on this mode, compared with those of the South Durham district alone, it would be found to be, on the whole, very much in favour of the South Durham district, and most especially so as regards deaths from explosions of fire-damp, and shaft accidents; considerably so as to those resulting from falls of coal and stone; and a greater amount of fatality would only appear as prevailing in the South Durham district from the single class of accidents termed miscellaneous.

WORKING OF THE MINES INSPECTION ACT.—The Inspection Act, in

Mr. EVANS's district, is working well; it has been the means, by introducing better machinery, increased ventilation, greater supervision, and fixing responsibility, of saving life. It is still of opinion that it can be carried too far, so as to interfere with private enterprise, and also relieve the owner and agent of that responsibility which fairly belongs to them.

There is considerable difficulty in Mr. MOORE's district in obtaining compliance with the Double Shaft Act, although instances are so frequently occurring which show the wisdom of that enactment. The most common attempts at evasion are in small fields, when a pit works 30 or 40 acres of coal; the pits are planted from 300 to 400 yards apart, and when they reach the coal and are opened up, ordinary workings are carried on in all directions, as well as the means of communication, and in some instances the pits would have been communicated and the field exhausted at the same time.

The system of obliging children of a certain age, whose education has been neglected, to attend school for a given time weekly, after they have commenced to work, is, in Mr. ALEXANDER's opinion, not applicable to all trades; but at best it is but a makeshift; the results are doubtful, and the regulation in mines relating to education receives no hearty support from those whom it was designed to benefit. The law recognises the obligation of parents to support their children, unless they are paupers; if that just and common sense measure could be extended to their education, then all half measures, such as limiting the age at which children should be employed, would be unnecessary. In seems to him that the most direct and practical way of carrying out a broad system of education, and any measure short of it will be unpopular, and expensive to enforce, and even when most successful can only check the evil which it attempts to cure.

INCREASE OF GOVERNMENT INSPECTION.—It would, in the opinion of Mr. PETER HIGSON, be hoping as it were against hope that the inspection of mines could ever prevent the occurrence of many of those accidents hereinbefore described, even though the number of Inspectors were to be many times multiplied; but if it be deemed necessary to increase inspection, it may be effectually carried out without increasing the present staff of Chief Inspectors, by appointing a second grade, consisting of young men of education and good character, to act as their assistants, not at a smaller salary; they would, under the guidance and supervision of the present Inspectors, render most valuable and important services. In no case should the owners of coal mines be relieved in any degree of their responsibility, and workpeople should be continually instructed in the best way of taking care of themselves.

Mr. BROUGH remarks that a strong desire has prevailed for some time past amongst the colliers and miners for more inspection; if this is granted, and the number of Inspectors increased, he hopes that additional responsibility will not by any means be incurred, for that must necessarily always rest with the proprietors and their agents, and he has no doubt that the means which will most redound to their own interests will be the establishment of more inspection by themselves. If the Government makes an increase, it is not at all unfair to expect that the owners should do the same.

VOLUNTARY INSPECTION OF MINES.—Mr. DAGLISH, the mining engineer and general manager of Earl Vane's collieries, has organised a system of voluntary inspection at many of the collieries under his charge, by which some of the workmen are made to examine all parts of the mines at stated intervals, to ascertain, as far as they can, the state of the airways, and to consider the general state of the mines with respect to safety, and to report in writing to him the result of their inspection and investigation; and Mr. ATKINSON has reason to think that it answers a good purpose, and gives general satisfaction to the workpeople employed in the mines; and he anticipates receiving, as Inspector of Mines, a complaint from the workmen if they found anything dangerous and requiring his attention, unless the danger was such as to admit of being quickly remedied, and the agents arranged to have it rectified at once. He expresses the wish that the system could be generally adopted at the mines in the district, as he thinks it is well calculated to prevent any of the subordinate agents neglecting to keep matters safe in their respective departments, and is, in other respects, calculated to promote the general safety of the mines. Its general adoption would, perhaps, have the effect of satisfying many persons who, in the absence of its adoption, think it desirable to appoint an additional number of Government Inspectors of Mines.

COMPLAINTS FROM WORKMEN.—Of the very few complaints from workmen as to the condition of, or practises in, the mines of the district which have reached Mr. ATKINSON during the past year, the majority have been made without any proper cause or foundation, mostly arising out of some ill feeling between the person complaining and the agents of the collieries. In other cases, however, there was reason for the complaints, the causes for which were at once agreed to be removed, in one instance at very great cost.

Complaints from workmen respecting the condition of some of the mines have been received by Mr. EVANS. In each case a careful investigation and inspection has been made, and the recommendations he has thought necessary to make have had attention. He received information from Newbold that boys under age worked in the mines, and at once communicated with the several colliery owners, and they assure him that, after careful enquiry, they are satisfied these are not truth in the charge brought against them.

Mr. MOORE remarks that an important means by which a manager can attain a more perfect knowledge of the movements in a colliery, and can frequently provide against danger, is by attending to the complaints or warnings from any of the workmen in a spirit of kindness and consideration. It has often been said by the workmen that the complaints from them are looked upon with suspicion by the managers, and that workmen do not make them, from dread of displeasure or dismissal. He believes this seldom, if ever, occurs—at all events, if ever it does occur, the manager who does it loses valuable opportunities of becoming acquainted with the practical working of the mine, and of the various operations going on. When any workman in a colliery, whatever be his position, finds that his information is listened to with attention, and its accuracy tested and appreciated, he gives it willingly, and soon becomes careful that it is accurate before he ventures to make it.

INCREASED USE OF MACHINERY.—Competition, high wages, and the scarcity of workmen during the past two or three years are, Mr. MOORE observes, gradually leading to the application of improved machinery and appliances to economise manual labour in collieries. This is most observable in surface arrangements; winding-engines with double cylinders and drums of large diameter on the crank shaft, instead of intermediate shafts and gearing, are now extensively used. They are a great improvement, as thereby greater quantities of coal can be raised daily out of one pit without a corresponding increase of fixed charges. It is worthy of remark that there has not been a single accident from overwinding during last year, nor has there to his knowledge been a breakage of ropes. The screening arrangements and wagons will stand comparison with any districts. The arrangements underground, though advancing, have not made such rapid progress. The ventilation is much improved during the last 10 years; in some cases, however, too little attention is paid to the special rules as to the ventilation, for it will be observed that the explosions during the past years have more frequently arisen from the non-observance of the special rules by the overman and firemen (two of whom are sufferers) than from a deficiency of the general ventilation. Haulage by engine power on underground inclines is more frequently adopted, and many of the applications are very good. Horses are also generally used for underground haulage, instead of men and boys.

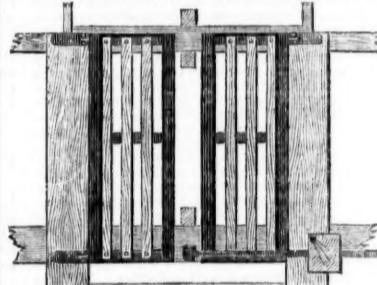
Necessity of Discipline in Collieries.—The all-important element which should prevail amongst collected bodies of men, whether military or civil, is, as Mr. BROUGH observes, discipline. Nothing else can aid so much in promoting obedience to rules and regulations, but it must become inherent in those who have to direct operations as well as amongst the workmen themselves. Exact hours, strict attention to the special business each person has to perform, no intermeddling with matters which do not appertain to their duty, though—nevertheless, a clear understanding that on the appearance of danger, by whomsoever witnessed, it is immediately reported to the nearest employee of

the mine. To arrive at this increased state of discipline, perhaps more persons will have to be dedicated to safety purposes than are generally at present met with; he believes that the oftener a working place is visited during the turn or shift the more will safety and regularity of operation be promoted. This addition to the staff would most likely repay itself, because there is scarcely a casualty that takes place but what is attended with extra cost to the owner, therefore a diminution of accident will be a lessening of outlay.

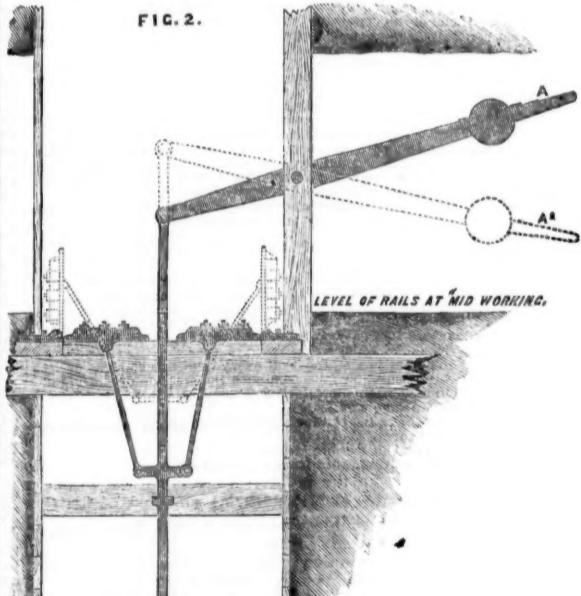
THE EVILS OF THE BUTTY SYSTEM.—Referring to the evils apparently inseparable from the butty system, Mr. BAKER mentions that in his district, as is well known, the butty or chartermaster system of working the mines prevails. The butty or chartermaster, who is simply a contractor, engages with the colliery proprietor to get the coal at a fixed price per ton, taking at the same time exclusive possession of the pit, subject, nevertheless, to the control of the manager or ground bailiff, and also the special rules, very few of which, however, as at present existing, apply to him or the deputy whom he may appoint. These men are, as a rule, selected from the ranks of the working colliers, and are, generally speaking, no better educated than their fellows, and it is to be regretted that in many instances they are unable to read the colliery rules. To this class of individuals the daily superintendence of the underground operations is for the most part intrusted, excepting and during the manager's visits, which are in many instances too few and too far between, as it is stated that it is no uncommon occurrence for weeks, and in some cases months, to elapse without any inspection of the mines being made by the manager or ground bailiff, who, by the way, appears to be better known now-a-days by the term "mine agent," mining engineer, or consulting agent, the last of which was some few months since ingeniously invented, and put forward to avoid the consequences of a prosecution for a violation of the second general rule of the Mines Inspection Act. This attempt, however, very properly and signal fail. Without wishing in the least degree to speak disparagingly of the colliery managers or the chartermasters—for it is well known that the former have in some cases many pits to superintend—it is clear that no system of mining can be efficiently conducted where such long intervals of absence on the part of the manager are permitted, for it must be fraught more or less with disaster and disappointment; and last, but not least, be detrimental in every sense of the word to the best interests both of the owner and the persons employed underground. There are, nevertheless, some butty colliers whose pits are worked as safely and with as much credit to themselves as are those carried on under any other mode of working. The existence of the butty system as a whole has, however, offered, and it is to be feared will always offer, insurmountable obstacles to improvement. Moreover, and what is, perhaps, worse than all, several indications point to an apparently growing desire on the part of some of the colliery owners and the agents to remove the responsibility which the provisions of the law impose conjointly upon them, and to cast it upon the butties or contractors and working men, which I may venture to state has never been attempted or contemplated in any other part of Great Britain, for it is, indeed, too absurd to be thought of, as it would at once destroy that confidence in the responsible management on which the colliers must daily rely for safety, and it would also deprive them of the most important benefits to which the Act of Parliament entitles them. It should, however, be distinctly understood that these remarks do not so much apply to the persons involved in this question as to the chartermaster system itself. There can be no doubt that if it were abolished a great saving of some of the most valuable lives in the world would be effected. There are, however, more pits and collieries worked without butties now than formerly, but owing to the hold the system has got in the district generally it is very doubtful if it will ever be entirely dispensed with,

THE MINING INSTITUTE SAFETY-LAMP EXPERIMENTS.—The reliability of the conclusions drawn from the experiments made under the auspices of the North of England Institute of Mining Engineers is seriously questioned by Mr. BROUGH. He observes that experiments with safety-lamps on an extensive scale took place in the North of England last year, and some of them showed such facility and quickness in passing the flame through the gaule as to afford ground for very serious thought and consideration. If these experiments are to be relied on, and the lamps we place in the colliers hands (long thought to be vested with safety) turn out to be vehicles capable of communicating flame to a surrounding fiery atmosphere, then, indeed, increased vigilance or some improved system of lamp will very clearly be required. However, it is but justice to state that of the lamps he has most recommended for many years past he looks upon the Stephenson to be by far the safest. In the experiments that he had an opportunity of witnessing in the North the gas of commerce (street gas) was used, and it is very well known that that is a combination which flashes at a much lower temperature than light carburetted hydrogen; indeed, he might say that it ignites under conditions of much more ease and facility than does the gas of our coal mines. A knowledge of this property certainly allays some of our anxiety on this subject.

PREVENTING ACCIDENTS AT MID-WORKINGS.—Various schemes have from time to time been tried, with a view of providing greater security to the persons employed at mid-workings, but, as Mr. ALEXANDER remarks, few of them have stood the test of a lengthened trial. A gate placed on the side of the pit, on account of its being a simple and inexpensive erection, is, perhaps, often introduced that any other contrivance, but it is liable to be left open, and, under such circumstances, instead of being a preventive, it is rather a lure to danger. The simple and safe way to work two seams of coal at different levels out of one shaft is to arrange a scaffold or grating at the upper seam, over one division of it, leaving the other open, but fenced off, so as to prevent any person from falling into it; or, to concentrate the operations, which is not at all times easily done, by cross-cut mines, so as to avoid separate landings.



SCALE. QUARTER OF AN INCH—1 FOOT



The above diagram illustrates a plan which has been in operation for the last two years at some of the pits belonging to the Eglington Iron Company, Lugar, for the purpose of preventing such accidents. It is the most effective construction of the kind he has seen in use here, and, though it is doubtful whether any mechanical arrangement can ever be maintained permanently in use which will wholly prevent these accidents, he is satisfied that an erection similar to the one in question would add greatly to the security of persons employed at "mid-workings." Referring to the sketch, Fig. 1 is a plan and Fig. 2 is a section. The apparatus is opened and closed by the person engaged as "bottomier" or "hooker-on." It is shown in a position for the cage to be rested upon it, and when the handle A is lowered to A', as shown on section in faint lines, the scaffold is then open to allow the cage to pass. It will thus be seen that the apparatus is simple in construction; it has just the two movements—when open it forms a fence, and when shut it acts as a cover.

INVENTORS' SUGGESTIONS FOR PREVENTING COLLIERY ACCIDENTS.—The year reported upon has not passed over without some philanthropic suggestions being submitted for the prevention of colliery accidents; of those, four have been referred to Mr. JOSEPH DICKINSON, for his special report. One (overlooking the fact that working places in coal mines are in a constant state of change) recommends the use of pipes in the form of an inverted siphon, with the long leg uppermost, to drain the goaves of gas. Another (from having seen the pneumatic train) suggests the use of pipes and fans to propel the air, which has been practised from the earliest times. A third brings up the old proposal similar to that upon which Dr. CLANNY based his first safety-lamp; that safety-lamps should be fed with fresh air carried in by pipes, instead of being supplied, as at present, by the air with which the mine is ventilated. Whilst the fourth points out that, although the Coal Mines Regulation and Inspection Act requires

The above tables really embrace all the general statistics contained in the reports, and a large amount of information as to the precise

safety-lamps to be "locked," yet nine out of ten are merely fastened with a set screw, which can be easily opened by a piece of hard wood or an old nail; also that some colliers have to find their own lamps, and in most cases are supplied from the ironmongers' shops, where they get a key with each lamp; and that the competition in the lamp trade is such that totally unfit lamps are sold and used. The remedy which he recommends being the appointment of Government inspectors of lamps, and the use of unpickable locks. Without attaching too much importance to the part of the suggestion relating to more inspection and the use of unpickable locks, which would practically place in Government employ the present numerous lampmen who have daily to examine and lock each lamp, without the control of the owners and managers, who are so vitally interested in the matter, and the fact that it is as easy to evade the law by using a Lucifer match as to open a set screw, if a person is so evil disposed; also that the miners should be treated as responsible beings, who are interested in not neglecting the requisite precautions for their own safety, and that if there be anything wrong going on in the pit they may easily have it remedied by calling in the present inspector. Still there is some ground for the suggestion. Even if the mine be worked upon the most approved system, none but good lamps ought to be used. The best do not appear to be quite secure. Thanks, however, to the North of England Institute of Mining Engineers, experiments have been going on for the last two or three years, which have shown that with a current at high velocities all the lamps now in use may be fired through sooner than was expected. A spirit of enquiry and investigation has been set in operation, and it is to be hoped that it will result in some improved lamps coming into use.

[To be continued in next week's Journal.]

Meetings of Mining Companies.

SOUTH CONDURROW MINING COMPANY.

A general meeting of shareholders was held at the offices, Austin-friars, on Thursday.—Mr. WESTON in the chair.

Mr. EDWARD KING (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.

A statement of accounts for the four months ending with the cost for June showed a debit balance of 11267. 9s. 7d.

The report of the agents was read, as follows:

Sept. 29.—King's shaft has been sunk to the 93 fathom level; at this level we have had to drive 3 fms. 4 ft. south to reach the lode, on attempting to cut through which we found it so soft and disintegrated that the pressure of the water with which it was surcharged forced it through the strongest timber we could bring to bear on it, and we have consequently been obliged to drive east on its north wall, with the view of reaching a point where we may cut through it under more favourable conditions. We are now approaching it obliquely, and are within 2½ ft. of the north wall, and expect within a fortnight to cut through the lode and ascertain its nature and value. In the 82 fm. level, west of King's shaft, now distant from the shaft about 45 fms., the lode is 1½ ft. wide, composed of flocuan and soft quartz, and within the last day or two has become productive for tin. In the 72 fm. level, west of King's shaft, we are driving south, at a distance of about 25 fms. from the shaft, to intersect the large tin lode being laid open at the level above. This cross-cut has now been driven about 4 fms., and we are beginning to meet with the small veins which preceded the intersection of the main body of the lode in the 61 fm. level; we, therefore, expect to be soon cutting through a valuable lode. In the 61 fathom level, west of King's shaft, we are opening out for stopping the large tin lode first discovered in this level; this lode is 3 fms. wide, and the tinstone which we have hitherto broken from it in stopping and driving has an average production of about 50 lbs. of black tin per ton, worth at the present price about 2s. The price which we are paying for stopping this lode is at present 6s. 6d. per ton, and the cost of stamping and dressing it is within 5s. per ton. This lode, therefore, can be taken away at a good profit. We have already opened out the lode for a length of 20 fms., and are now sinking and rising between the 61 and 51 fm. levels, to give ventilation and greater facilities for stopping. The communication between these levels will be effected in about a week, and we shall then be able to employ an additional force in stopping. Our stamping power being at present very limited, consisting of an 8-head water mill, we have succeeded in making arrangements for taking an additional water stamping mill of 20 heads, in the same valley as our present mill, and which we shall be able to get possession of in six weeks or two months from this date. This will enable us to stamp about 280 tons of tin-stone per month, from which we calculate to return about 350t. worth of black tin per month. Whilst waiting to get possession of this additional stamping power we shall lay open our tin ground sufficiently to enable us to keep it supplied, and during the winter months shall thus be able, by water-power, to return all our tin raising, and in that time shall have given a further development to the tin lode, which will enable us to judge as to the propriety of erecting a steam stamping-mill upon the mine. It certainly seems at present that we are likely to have a tin mine of considerable importance and value. In the 51, west of Vivian's shaft, the lode is 3 feet wide, composed principally of chlorite, with a little tin disseminated throughout. In the 20, east of the engine-shaft, on the middle lode, the lode is 2 feet wide, and producing tin worth about 8s. per fathom. Our cost in the past four months has been much increased by the erection of a steam-whim, and work connected therewith, but we shall derive considerable benefit from this outlay, and shall use every endeavour to bring our expenditure within narrower limits. We have sold since the last meeting 100 cwt. of tin and copper to the value of 316L 16s. 10d., and have about 170t. worth on the stamps-floors, which can be prepared and sold within a fortnight, our water-power having increased within the last few days. We have also 260 tons of tin-stone on the floors of the mine, containing by assay about 333t. worth of black tin, so that our production of ores, which might have been sold and credited but for the extremely dry summer which we have had, makes an amount of 759L 16s. 10d. During the coming winter months, and under the arrangements which we have made, we are not likely to suffer from this inconvenience. We have also about 70t. worth of copper ore on the floors, but our production of copper is now small. We estimate our returns of tin after getting possession of the additional stamping-mill at 500t. per month, and our expenditure will not be much in excess of this amount, whilst the further development of the tin ground in depth seems likely from present appearance to lead to much larger returns, and to our realising those profits from tin which our first discoveries induced us to expect from copper.—JOSEPH VIVIAN AND SON, WILLIAM WILLIAMS.

The CHAIRMAN moved that the report be received and entered on the minutes, and that the accounts be passed and allowed. He was sorry that he was unable to submit a more satisfactory statement, but it had arisen in a small degree from the fact that during the past few months the want of water had prevented them from bringing their produce into a marketable condition. As far as the committee were concerned, they watched very narrowly every financial detail connected with the mine, and placed before the adventurers the exact position of the company. As to the report just read, they would all agree with him that it was couched in very sanguine terms, and, as far as he was concerned, he should rather have seen a little less sanguineness expressed, because the reports had always been sanguine, although he was sorry to say they had not always been borne out by results. Still, however, the seemed substantial ground for hoping for a more encouraging future. One point was, the agents must be instructed to confine as much as possible the operations at the mine to such points as were more immediately productive—at any rate that course should be adopted for a time, so as to curtail the monthly costs. There was no doubt the call the committee were about to propose would much surprise the shareholders, but the committee had a duty to perform, and were obliged to make a call of sufficient amount to meet the liabilities.

Mr. KING read a letter from the agents, which stated that the debt balance entirely rose from the dry summer having kept the water-wheel idle. It further stated that the returns would be greatly increased shortly, and it was hoped they would be able to return tin from the present discoveries to the extent of 50t. per month.

A letter was read from a local shareholder, to the effect that the mine could now be made to return 400 tons of tin-stone per month, worth at least 25s. per ton; and the writer impressed upon his co-shareholders the necessity of working the mine more energetically than at the present time, and that from the discoveries of tin made it was very easy, if prudently worked, to make the mine self-sustaining.

Mr. KING, in reply to a question, stated that every item was charged up, including the whole of the expense in connection with the erection of the whim. The report and accounts were then received and adopted.

A call of 5s. per share was made.

A resolution was passed that a list of the shareholders in arrears of call should be handed over to the creditors of the mine.

The committee of management were re-elected.

A vote of thanks to the Chairman terminated the proceedings.

WHEAL UNY MINING COMPANY.

A general meeting of shareholders was held at the offices, Austin-friars, yesterday.—Mr. MCALLAN in the chair.

Mr. EDWARD KING (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.

A statement of accounts for the three months, ending with the cost for July, showed a profit of 271L 5s. 11d. The credit balance amounted to 382L 6s. 9d. The report of the agents was read, as follows:

Sept. 30.—Since the last meeting the engine-shaft has been sunk 4 fathoms; it is now 5 fathoms below the 140. The lode in the first 3 fathoms sunk was disturbed by a horse of quartz and hard capes. In the last 6 feet the lode has changed in character, especially in the bottom of the shaft, by a branch dropping in from the south. The value of the lode, for the length of the shaft, is 20s. per fathom. The 140 is driven east of the engine-shaft 15 fathoms; the lode for the last 5 fathoms has been worth 40t. per fathom, and is its present value. In the rise in back of this level, and up 7 fathoms, the lode is worth 40t. per fathom. The 140 is driven west of engine-shaft 11 fathoms; the lode has been producing tin-stone of low quality; it is improved, and is now worth 8s. per fathom. The cross-cut at the 130 has been driven into the lode 6 fms., and we have not yet driven the south wall; for the last 4 fathoms it has produced tin-stone of 1½ cwt. of black tin per 100 sacks. We intend to drive this cross-cut until we meet with the south wall of the lode. The 130 is driven east of shaft 30 fms. In a slope in back of this level, and 7 fathoms behind, we have found another part of the lode north of the level, which is rich for tin, and the men are engaged in driving it out. The lode in the present end, or part driving on, is worth 10t. per fathom. The lode in the 129, east of shaft, is worth 10t. per fathom. Goodlidge's shaft is completed to the 110, from where we are drawing the tin-stone preparatory to driving the 110 east of this shaft. The lode in the 100, east of Goodlidge's shaft, is worth 12t. per fathom. The 140 is driven east of incline shaft 17½ fathoms, on the north part of the lode, which is easier for driving; it is producing low quality tin-stone. We are now just under where we had good the ground in the level above; therefore, we expect an improvement shortly. We have put six men in this end, and also six men in the 140, west of the engine-shaft, to hole this ground, without the aid of a lift in the incline shaft, if possible. The 140 is driven west of incline shaft 14 fathoms; it is suspended owing to an increase of water. In the 130, west of incline shaft,

the lode is worth 5t. per fathom. In the 120 west the lode is worth 7t. per fm. The improvements we have had in the 140, east of engine-shaft, and in the stopes in back of the 130, east of the cross-course, have enabled us to keep up our returns, and it has also laid open a valuable piece of tin ground. We see no difficulty in doing the same next quarter without working much of the back of the 140, before well ventilated. It gives us great pleasure to say that the lode in the level, east of the cross-course, is of a more promising character, and is producing better quality tin-stone than in the levels above; judging from this, we have reason to expect that the lode will improve in depth.—J. DAW, S. COADE, M. ROGERS.

The CHAIRMAN moved that the report be received and entered on the minutes, and that the accounts be passed and allowed. He need hardly say, as that was indicated by the report, that the position of the mine was gradually improving, and that its prospects were of the most encouraging character; so encouraging, indeed, did he regard them that he had been endeavouring to increase his interest in the company. Not only had the mine improved, but there seemed every reason to believe that the price of tin would advance. Those were features which could not fail to make Wheal Uny a permanently profitable mine.

Mr. KING said there appeared reason to hope that the credit balance at the next meeting would be something like 700L, irrespective of any rise that may take place in the price of tin. He had been informed upon the best authority that it was almost certain tin would advance in value about 3t. per ton, and in that case there would be a sufficient credit balance to admit of a dividend of 2s. 6d. per share being declared, and to carry forward a credit balance of between 300L and 400L. He then referred to the improvement in the bottom of the mine, stating that it was started for the express purpose of intersecting the elvan course and the junction with the granite. Not only had that intersection been reached, but a flooky lode was making its appearance in the shaft. That was so far important, inasmuch as the character of the ground would enable the agents to sink the engine-shaft at the rate of 2 fms. instead of 2 ft. per month.

A SHAREHOLDER stated that he had had a considerable interest in the mine for some time, and he had every reason to believe from the information he had received from the country that Uny was one of those mines that, after having stood the ordeal that all mines had passed through from the depressed price of metals, would from the improvements that had taken place soon be in a dividend-paying position. He was glad to see that so many of the old proprietors retained their interest.

The report and accounts were received and adopted, and the committee of management were re-elected. A vote of thanks to the Chairman terminated the proceedings.

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

WEST MARIA AND FORTESCUE.—These mines are gradually increasing their returns of copper. The last sale, with the mundie, was poor ore; sold privately, and will about meet the cost. The 40 and 50 fm. levels are open out good reserves. The new whim-engine for drawing and crushing is gone to work this week, which will give extra facilities for returning large quantities of copper for the market.

GOONBARRY.—The prospects of this mine are not only satisfactory, but such as to warrant the influence that the discoveries made, and being made, are among the most important that have been made in Cornwall for some time past. The mine is almost daily visited by parties who feel a desire to satisfy themselves about the richness of the lode, and they invariably express their satisfaction as to the importance of the discovery. That a large and most valuable tin mine has been discovered is the general opinion.

PRINCE OF WALES.—It was pretty well understood by those most conversant with mining that so long, strong, and valuable a course of ore as has been gone through in the upper levels would be certain to hold down, and that the appearance of ore in the bottom level was only a question of time, depending on the dip of the two deposits. This event has now come off, in a manner which proves most triumphantly that the Prince of Wales has established mine of very great worth—the ore having come in both east and west of good value, and with evident signs of opening out to much greater values. The appearance of the ground and indications in the cross-cut from the 55, to ascertain if the supposed new south lode holds down, are most encouraging, and indeed they are such as to constitute this one of the most interesting and exciting moments which has occurred during the comparatively brief but prominent existence of the undertaking. It is considered a matter of certainty that the new lode will be found to hold down, and should it be cut, with or without ore, its very existence will add immensely to the value of the mine.

CWM DARREN.—The ore is improving every foot that we sink. We are evidently on the verge of entering into an excellent course of ore.

GREAT CWMSEYMLOG.—There is a better appearance in Oliver's adit, with copper in the lode. On getting timber we must clear through the run in the south level, and drive at once under the great course of ore by cross-cut.

FRANKE MILLS.—There will be 115 tons of No. 1 and 40 tons No. 2 quality lead sampled this day (Saturday), making 225 tons of lead sold and sampled since July 5. This will leave a considerable profit.

At EAST WHEAL GRENVILLE the caunter lode in the 110 east has improved to 1½ ton of good copper ore per fathom, and there is now a good lode for 35 fathoms in height. The winze below the 75 is still worth 6 tons of ore per fathom for length of 15 ft. (not 15 ft., as stated last week), 11t. of sinking having yielded 12 tons of good yellow ore. The winze below the 95 is worth 2½ tons of ore per fathom. The tribute pitch, in the 110 west, contains worth 3 tons of ore per fathom; two men during the past fortnight have broken 7 tons of rich ore, and the pitch is now set to four men, at 4s. in 17 ft. the men to pay every expense of making the ore marketable. The three cross-cuts are progressing favourably; the ground in each cross-cut is entirely drained by the lower levels, and which is a strong indication of a successful result when the lode is intersected.

BRYNSTWITH.—There has been some splendid ore broken in the rise going up to the Long Drift; the latter will be reached in about 13 fathoms. The old men say that there are excellent stopes above the rise.

CWM BYCHAN.—Till lately this mine has been lying dormant; the primary cause of it remaining so long in abeyance was in consequence of the high royalty asked, which has retarded the progress of mining enterprise throughout England and Wales. Since the present proprietor of this property has had possession of it, I am told, he has made great concessions as regards the dues. The result is this old mine has been taken by some local mining gentlemen. The situation of Cwm Bychan Mine is one seldom met with; it lies about 3½ miles south of Combes Road Railway Station, on the Cambrian Railway, and within 2 miles to Combes Coch, where a shunting on the above line, I have no doubt, would be granted. The heavy overland carriage of ore in many parts has been a great cause of swallowing up the resources of mines. Having lately heard that a good discovery of lead had been made, I was induced to undertake a journey there. After strolling along the beautiful Vale of Dovey, with its silvery water, and along the Vale of Twynlyn, I soon found my way to this mine, though a little distance from it I was encircled by a massive plantation of oak, &c., which is another great advantage towards the working of this set. On my arrival I immediately saw I was not deceived, as I was astonished to see such large quantities of potash ore raised in so short a time, mostly in solid blocks. There is at present, as I was told, about 40 tons of ore ready broken, and the dressers busy cleaning it for market; I presume a lot will be sold this week. There is another rib of steel or silver ore in the mine, which is computed to return 18ozs. of silver per ton; the lode is composed of carbonate of lime and gossan. Its appearance is of a most productive kind. The proprietor, I trust, will pardon me for suggesting one thing—to open more ground. Why not drive the deep adit further east? which will meet with your present run of ore ground, and which, I have no doubt, produces at present 2 to 2½ tons per fathom; then you will have plenty of depth, without going to the ruinous expenditure of erecting a steam-engine. Though a stranger to the shareholders, I must congratulate them on their grand discovery; it can hardly partake of the term speculation, if legitimately worked—indeed, there appears no doubt of its making one of the best dividend mines in Wales, and that at a very short period. It would amply repay the tourist, as well as those who are interested in mines, to take a pleasure trip there.

CRADDOCK MOOR.—They are opening on the lode in the western part of the sett, which contains good stones of tin, and intend to sink some fathoms on its course. They expect to sell about 150 tons of copper ore to the credit of next account.

CAPEL BANHAGLOG.—A discovery of some importance is reported to have taken place at this mine.

CHIVERTON MINE (adjoining mine to West Chiverton) is opening out well. The discovery just made of a lode at about 20 fms. deep, producing 1 ton of rich silver-lead ore per fm., is important, and if it continues to improve in depth the returns, now at present at the low price of 2L 10s. to 3L, may soon see their old price—14L to 15L.

NEW GREAT CONSOLS.—This mine, which lies to the west of Devon Great Consols, and having the same lodes, is now getting into good working order, and regular bi-monthly sales are commenced. As soon as the plunger lift is fixed at the 74, the agents say that they will be ready to let many tutwork bargains, which will at once lay open some valuable ground, and go to prove the great point for which the work was started—to open the lode at the 84, and to test it at deeper levels. On the western side of the cross-cut the late company cut a stream of hot water; the lode there is very lame, and when opened on, doubtless, it will be productive. The Broadgate shaft, which descended into this sett 25 fms. below surface, yielded considerable quantities of ore to the late company, the whole of which was taken from our sett. The geological characteristics of the sett are of the best kind, and furnish reasons for strong confidence in the reports given by the agents, who think highly of the mine. The affairs of the company are well conducted; the secretary is Mr. Phillips, of London.

FOREIGN MINES.

GONNESEA.—R. W. Rickard, Sept. 15: San Giovanni Mine: Lead Section: On account of the scarcity of miners we have confined the operations in this part of the mine to the sinking of two winzes and the working of three sets of stopes. The No. 1 winze, in the bottom of Taylor's level, east of Carbone's shaft, is sunk 30 metres; the last 4 metres sunk have produced 4 tons of ore per fathom. The other winze is in the bottom of Emanuel level west; the lode yields 2 tons per fathom.—Calamine Section: A few men only have been working in this part of the mine. On account of the scarcity of men we have been obliged to pay extra rates of wages for the works we were desirous of keeping going there.—San Giovanni Mine: But little has been done in this mine, either in the lead or calamine department, during the month of August, but we have now resumed our works here.—Monte Cane Mine: We have set several pairs of men to break calamine in the mine, and find the lodes turn out well, although they are small when compared with those in the surrounding mines; the ore is of good quality.—Acqua Rest Mine: The lode in the level at St. George turns out well; it is about 7 metres, or 22 feet, wide; two-thirds of it is good calamine. We find some difficulty in working this large lode with miners so inexperienced as those to get there, and have found it necessary to put an Englishman there to superintend the work.—Guttura Pala Mine: The works in this mine are confined to the driving of Eenthalen's cross-cut, and stoping with a company of six men in Garracia's shaft, on the calamine lode. No change was found to take place in the cross-cut, nor in the appearance of the lode in the stopes during the past month.—Gonessa Calcining Establishment: Although we

have good stocks of calamine at the mines ready for the furnaces, yet we have been able to work very irregularly at this establishment, on account of the want of means of carriage from the mines to the furnaces. The lead dressings have also been partially suspended for the same cause. By the end of September the roads will be in good order, and the carriage will be regularly done. We estimate our returns for August to be 205 tons lead ore and 700 tons calamine.

WATSON BROTHERS' MINING CIRCULAR
WATSON BROTHERS,
MINING AGENTS, STOCK AND SHARE DEALERS, &c.
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

MESSRS. WATSON BROTHERS return their most sincere thanks for the great patronage bestowed and confidence reposed in their firm for 25 years, and to assure their friends and clients it will be their earnest endeavour to merit a continuance of both.

Messrs. WATSON BROTHERS have made arrangements for continuing their weekly Circular, which has had a large circulation for many years, to the columns of the *Mining Journal*, their special reports and remarks upon mines and mining, and state of the share market, will in future appear in this column. In the year 1842, when Cornish mining was almost unknown to the general public, attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. J. Y. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1842), "Cornish Notes" (second series, 1843), "The Progress of Mining," with statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and share dealing than there is at present; and, from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services to all connected with mine or the market, as they have for so many years done privately, through the medium of their own Circular.

Messrs. WATSON BROTHERS transact business in the purchase and sale of mining shares, and other securities, payments of calls, receipt and transmission of dividends, obtaining information for clients, and affording advice, to the best of their knowledge and judgment, based on the experience of more than 30 years active connection with the Mining Market.

Messrs. WATSON BROTHERS also inform their clients and the public that they transact business in the public funds, railway, docks, insurance, and every other description of shares dealt in on the Stock Exchange.

Messrs. WATSON BROTHERS are also daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

Messrs. WATSON BROTHERS having agents and correspondents in all the mining districts, and an extensive connection among the largest holders of mining property, have the more confidence in tendering their advice on all matters relating to the state and prospects of mines and mining companies, and are able to supply shares in all the best mines at close market prices, free of all charge for commission.

WEST PRINCE OF WALES—"R." (Begent-street).—Two shafts have been sunk at this mine on two fine looking lodes to a depth of 36 fms. from the surface, and the south shaft will be continued at the rate, we suppose, of about 3 fathoms a month. The adit level was driven 40 fathoms on the south lode, which yielded fine stones of ore nearly all the distance, and in the bottom of the shaft there is now as fine a looking lode as can be seen; and the agent thinks we are on the top of a fine course of ore. At the Prince of Wales we first found ore 30 fms. deep, and our first rich course of ore was at the 45'; so it will be seen we are quietly approaching the depth at West Prince of Wales, and we have every reason to expect as good a mine. In addition to driving the adits, &c., and sinking two shafts, a steam-engine, with all the other machinery requisite for an extensive mine, has been erected and paid for out of the working capital (34000£) which remained after paying for the purchase of the mine, &c., eighteen months ago. No call has ever been made, though a small one may soon be required. The shares are well held, many people holding over 1000 each, and there have not been of late many transactions in them. We remind our readers, however, that when Prince of Wales shares were only 8s. or 9s. a share we strongly recommended them week after week, and great numbers who bought them in consequence sold them afterwards at 3s. Prince of Wales then stood almost alone in the district, but of faith was strong, and in recommending West Prince of Wales to those who can get shares, we have the experience of the same lodes and the results of Prince of Wales to guide us.

SATURDAY.—Market quiet. Prince of Wales, 39s. to 41s.; Chiverton, 2½ to 3s.; Marke Valley, 7½ to 7¾; East Grenville, 2½ to 2½; Chontales, 2½ to 3½; West Prince of Wales, 6s. to 8s.; Wheal Grenville, 20s. to 25s.; Don Pedro, 3 to 3½; Yudanamutana, 2½ to 3½.

MONDAY.—Market moderately active. Prince of Wales shares in demand; Wheal Chiverton shares receded to 2½, sellers. Prince of Wales, 39s. to 41s.; Chiverton Moor, 6½ to 6½; West Prince of Wales, 7s. to 9s.; East Grenville, 2½ to 3½; Drake Walls, 7s. to 9s.; West Chiverton, 60½ to 61½; Bassett, 67½ to 7s.; Wheal Chiverton, 2½ to 2½; Chontales, 2½ to 2½; Don Pedro, 3 to 3½; Yudanamutana, 2½ to 3½.

TUESDAY.—Good demand for Prince of Wales, Chiverton, Bassett, Marke Valley, Seton, Great Laxey, and Don Pedro shares. Prince of Wales, 40s. to 42s. 6d.; Chiverton, 2½ to 3½; Bassett, 67½ to 72½; Marke Valley, 7½ to 7¾; Great Laxey, 17½ to 18; Seton, 47½ to 52½; Don Pedro, 3 to 3½; Chontales, 2½ to 2½; Yudanamutana, 2½ to 3½; Great Vor, 11 to 12.

WEDNESDAY.—Active demand for Prince of Wales shares, at 40s. to 42s. 6d.; West Chiverton, 60½ to 61½; Marke Valley, 7½ to 7¾; Chiverton Moor, 6½ to 6½; Bassett, 67½ to 72½; Great Laxey, 17½ to 18; East Grenville, 2½ to 2½; Wheal Grenville, 20s. to 25s.; Don Pedro, 3 to 3½; Yudanamutana, 2½ to 3½.

THURSDAY.—The market is again active for Prince of Wales, at an advance, West Chiverton, West Seton, Marke Valley, Great Laxey, and Don Pedro. Prince of Wales, 41s. 6d. to 42s.; West Chiverton, 60½ to 61½; West Seton, 15½ to 17½; Marke Valley, 7½ to 7¾; Great Laxey, 17½ to 18; Great Vor, 11 to 12; Wheal Seton, 10 to 11; Chontales, 2½ to 2½; Don Pedro, 3 to 3½; and Yudanamutana, 2½ to 3½.

FRIDAY.—The market is again active, with a good demand for Prince of Wales, at 41s. to 43s.; West Chiverton, 60½ to 61½; Chiverton, 2½ to 3½; Grenville, 22s. 6d. to 25s.; South Herodsfoot, 17s. 6d. to 22s. 6d.; Seton, 47 to 49; Marke Valley, 7½ to 7¾; East Grenville, 2½ to 2½; West Prince of Wales, 7s. 6d. to 10s.; Yudanamutana, 2½ to 3½; Don Pedro, 3 to 3½; Chontales, 2½ to 2½.

Mining Correspondence.

BRITISH MINES.

ABRAHAM CONSOLS.—John Vivian, Oct. 1: In the 27, driving east of No. 2 shaft, the lode is 1 ft. wide, producing tin of low quality; the ground is hard. In the 27, driving west of ditto, the lode is 2 ft. wide, with good stones of tin, and indications of improvement, with white decomposed ground about it, very promising for tin.

BEDFORD CONSOLS.—J. Mitchell, Sept. 30: We have cut through the new south lode in the middle adit level, west of cross-cut, which is near 6 feet wide, and looking exceedingly kindly; it is composed of a strong capel, spar, a great deal of munde, white iron, pyrite, and occasional stones of yellow copper ore. The ground in the east end, by the side of the lode, is still of a congenial character for the production of mineral, and easy for driving. We have commenced to cut into the lode at this point, which, so far as seen, for about 2 feet wide, is composed of capel, munde, peach, a little white iron, and spots of rich yellow copper ore. We intend to continue the drivage by the side of the lode, and cut it through at the same time, in order to expedite the work, as the men will then shut their holes on leaving.

BRYNNYSTWICH.—J. F. Tregowin, Sept. 29: I have been underground measuring the eastern end. It is 2½ fms. 5 ft. in the end. We have finished clearing out all the stuff. I have got some men clearing up the sides of the deep adit level, and in clearing away the skimpings and other stuff from the floors. The rise is 7 fms. 2 ft. high from the bottom of the level; there is a little ore in it now; there are about 15 fathoms more to rise to hole it up to the long drift. There has been some spindid ore broken in this rise. I think we should do well to put four men in this place. A man wanted to take it on tribute about a year ago, if he could have 12 months lease. The old men tell me there are some spindid stones up above this rise, all the stones of ore came out of the stuff of the rise. I will send some of them to the office. The lode in the western end, driving north, is worth 40s. per fathom. The whim is getting on very well, and I think we may commence drawing out the water on Wednesday. The north cross-cut is getting on very well.

CAPE CORNWALL.—R. Pryor, F. Hosking, Sept. 30: There is nothing particular new to report on this week, with the exception of the lode in the south side of the 100, east of engine-shaft, which is producing good stones of tin; no south wall has been met with as yet. Saturday next being our pay and setting a full report shall be sent you.

CARADON CONSOLS.—S. Bennett, Sept. 29: We have cut a small branch or two in the 78 north, but no lode as yet; similar branches are seen in the 68 fm. level, some 2 to 3 fms. south of the gossan lode. In the 78 west the lode continues large, yet somewhat disordered; it has within the last few feet made a decided turn north, towards the perpendicular one, which is some 6 ft. further to the north. I look on this as a favourable indication. The lode continues spotted with ore, and produces a little saving work. The lode in the 68 fathom level west is not looking so well to-day as it did the last time it was taken down, although the north droppers look equally favourable.

CEFN BRWYNSTWICH.—J. Paul, Sept. 29: The lode at the 80, east of engine-shaft, is 3 ft. wide, of a very promising character, worth 15 cwt. of lead ore per fathom; the same level, going west of the shaft, is in a hard and strong lode, full 9 ft. wide, and the part we are extending the level upon yields 11 cwt. of lead ore per fathom; here we hope to open out a good piece of ore ground shortly. The lode at the 56, at deep adit level east, is 5 ft. wide, composed of spar, carbonate of lime, blende, and clay slate, intermixed throughout with strings of lead—a very promising lode, and I look forward with great hopes to a discovery of something good here soon; this level is entering a fine piece of virgin ground. In the cross-cut north at the 20 we have within the last few days cut several strings or branches containing spar and small spots of lead and copper, and from the appearance of the ground there is every reason to believe that we are near a lode. The whins below the 56 is communicated to the rise over the 80, east of shaft, which has well ventilated both levels. We had some nice rain here the latter part of last week, which has given us a good supply of surface water, and will enable us to soon get the water out of the bottom of the mine, and resume the driving of the deeper levels.

CHANTICLEER.—William Walley, Oct. 1: I have set the 90 yard level to drive west of shaft, for this month, at 20s. per yard, and 80s. per ton for ore, the men to fill and land all the stuff, pay for drawing, candles, &c., as usual. The lode in the present end is about 1 foot wide, composed of clay, &c., and is producing some nice lumps of ore. I have put two men to continue the rise in the root of the 110 yard level, where the lode will at present produce 1 ton of ore per yard, and looking very promising. I am glad to say that we have now got water to dress again, and shall soon have another lot of ore ready for sale.

CUDDRA.—F. Pockey, Sept. 20: In the 142 end, west of Walker's shaft, the men are making fair progress in driving. The rise in the back of the 130 is now communicated with the whins sinking below the 100, which has given good ventilation. The lode in the different stope is without alteration in value since last reported on. On Friday last we sold 15 tons 12 cwt. 1 qr. 12 lbs. of black tin, which realised 8917.

DUKE OF EDINBURGH.—C. F. Collois, Oct. 2: Since last report we have driven the 45 fm. level west 3 fms. 4 ft., in a very pretty lode. The ore part being the point of a splice formed on the footwall, which promises to open up good profitable ore; in the present end we have just passed through the cross-course, west of which we appear to be getting near the lode. We have discontinued for the present the cross-cut south.

EAST ROSEWARNE.—C. Glasson, Sept. 28: Since the last meeting we have driven down 5 fms.; lode 12 in. wide, worth 4f. per fm.; present end worth 6f. per fm.

The 115, east of shaft, is driven 10 fms.; for this distance the lode will average 12 in. wide, worth 6f. per fm. The 105, west of shaft, is driven 5 fms.

The lode for the first 3 fms. is 8 in. wide, worth 3f. per fm.; the last 2 fms., the lode is 6 in. wide, producing stones of ore, but not enough to value. The rise in back of this level is up 9 ft.; lode 8 in. wide, unproductive; here we may expect an improvement shortly, as there is a good lode gone down in the bottom of the 25, for more than 40 fms. in length. The 105, east of shaft, is driven 1 fm. 4 ft.; lode 10 in. wide, worth 3f. per fm. The rise in the back of this level is up 4 fms.; lode 8 in. wide, worth 4f. per fm. I calculate to communicate this rise with the 25 in about five weeks from this date. The 95, west of shaft, is driven 10 fms. 3 ft.; lode 12 in. wide, worth 5f. to 8f. per fm.; present end worth 8f. per fm.; this end is now 6f. worth of King's shaft. There is nothing done in the bottom of this level, nor shall we be able to until the rise is put through from the 105, to take away the water. The 95, east of shaft, is driven 2 fms.; lode 12 in. wide, producing good stones of copper ore; about 10 ft. above the back of the end, in the stope, there is a good lode, worth 10f. per fm., dipping towards the end; and, if this ore should continue to hold down, we may expect to meet with it in driving about 4 fms. more. In looking at the different points now in operation, with the expectation of meeting with a good lode in the 95, east of King's shaft, and also in the rise, in back of the 105, with the ore driven through in the 115, I should recommend all the present operations to be carried on with all speed, and also the sinking of King's shaft 10 fms. deeper; this is a very important point, as all the ore in the 115 east is dipping west towards the shaft. The stop in the back of the 115, east of shaft, is worth 6f. per fm. The stop in the back of the 105, east of shaft, is worth 5f. per fm. The stop in the back of the 95 east of shaft is up 9 ft.; lode 8 in. wide, composed of shale and spar, with a little munde and blonde, and occasional stones of silver-lead; and the ground has been without change during the past week.

GWYDYL PARK.—W. Smyth, Sept. 29: There is no particular change in the shaft at Gwylion since last report; the lode is still rather disordered; reset to six men, at 16f. 10s. per fathom; stent the month. In Gwydyr the lode is about 9 in. wide, composed of shale and spar, with a little munde and blonde, and occasional spots of lead ore; reset to three men, at 8f. 15s. per fathom; stent 2 fathoms, or end of the month.

HARWOOD.—W. Vipond, Sept. 26: I have nothing to report from here except the bargains which were set yesterday. The stop on Trough vein which is very poor, is set to be taken down up to the end, at 17s. per fm. We shall very soon have to begin with the stop above this when there is better ore. The driving on the north string is about paying cost, and is set to two men, at 6s. 6d. per fm. The level in Richardson's vein is set to two men, at 3s. 6d. per fm. I must have this place surveyed early next week, to see, if possible, if it is actually Richard-son's vein we are driving upon; I have some doubts about it.

LOVELL CONSOLS.—W. Chappell, Oct. 1: We are making good progress in driving the 12 west to get under the dip of rich tin discovered in the bottom of the adit; the tin is dipping west, the same as that rich run of tin ground in East Lovell, which are adjoining sets, and parallel lodes; the tin is precisely the same in character as that of East Lovell, therefore from the rich lode seen in the bottom of the adit, and being of the same dip and character as that of East Lovell, I am looking forward to make a valuable discovery before long in the bottom level driving west. Our machinery and pitwork are all in good working order.

MAUDLIN.—John Tregowin, Sept. 26: In deep adit east we have driven in the month 3 fms. 2 ft.; set to drive again at 5f. per fm.; the lode here produces good stones of copper ore. In back of the end the lode will produce 1 ton of copper ore per fm. In deep adit west we have driven in the month 2 fms.; set to drive again at 4f. per fm.; the lode here produces good stones of copper ore, and promises improvement.

MINERA UNION.—W. T. Harris, Oct. 1: Low's Shaft: The ground in the 75 fathom level cross-cut west is without material change, consisting of white limestone. An increased quantity of water issues from the forebay, and I am daily expecting to intersect the lode. The ground in the 40 fathom level cross-cut, driving east, consists of black limestone, of very congenial character for lead.—Brabazon's Shaft: The pitch in back of the 80 south is as last reported, for lead.—Brabazon's Shaft: The pitch in back of the 80 south is as last reported, for lead.—Brabazon's Shaft: The pitch in back of the 80 south is as last reported, for lead.—Williams's Shaft: The lode in the stop in the bottom of the 40 yard level worth 8 cwt. of lead per fathom. We have resumed dressing, and shall lose no time in getting the lead which has accumulated, in consequence of the drought, to about 52 tons, ready for market. Yesterday we weighed 6 tons, realising 11l. 17s. 6d. per ton.

MOUNT GABRIEL.—Sept. 29: The driving on the course of Hilt's lode from the 30 fm. level cross-cut is a little over 3 fms., and the ground becoming free from the widening of the floor. The leaders of spar, as noticed in former reports as crossing the forebay, have, in opening the ground, become united. The branch now standing in the end is more than 1 ft. wide, and going down with great regularity. The wall still carries a fine floor, which has now increased from 6 to 8 ft. in breadth, and is composed of spar, iron, and other constituents of a promising lode; and, although we are unable to report any discovery of copper ore, we consider it advisable to pitch on the present end a few fathoms further, which we cannot but think must lead to something decisive. We calculate that about 5 fms. would extend the present cross-cut from the 20 to intersect this same lode in that point, and being so much nearer to that part already worked, would, of course, soon determine the shoot of ore, and which, as before noticed, we would advise carrying out should the present favourable indications in the bottom level show a very fair chance.

MOUNT PLEASANT.—Wm. Wasley, Oct. 1: Since my last report, owing to the deadness of the air in the 120 yard level, north of Jenkins's shaft, I have been obliged to suspend operations in this part for the present. I have put six men to sink Jenkins's shaft below the 120 yard level, which is now down 7 yards. The ground in the bottom is just the same as it has been for some yards. I have let the shaft to sink until the end of the month, at 80s. per yard. The joint in the bottom of the shaft is about 1 ft. wide, of an open nature, with a little spar, &c. The end driving west of Bright's shaft is producing some nice lumps of ore, and looking very promising.

NEW CLIFFORD.—(Special Report).—William Kitto, Sept. 30: At your request I have again inspected the New Clifford Mine, and also very carefully considered your prospects and position, and now beg to lay before you the following remarks:—You are aware that the object for which you put up your engine was to test a lode seen in the evan near the engine-house; and also, by the aid of flat-rods from the engine, to prove a north lode, which, I think, is called Weston's lode. After sinking your main engine-shaft 50 fathoms deep, the first-named lode has so far proved a failure. In the meantime, after sinking Weston's shaft, the flat-rods, the lode (Weston's) was found to change its underlie from north to south; your manager, then, seeing his position, I think very wisely turned the flat-rods idle, and suspended sinking, as he plainly saw he could drain the water and prove the lode by a cross-cut from the main engine-shaft; this would also prove any intermediate lode which might come in its way. This said cross-cut has been started, and driven 46 fathoms, and is now into a beautiful channel of ground (kilas), in which, when the lode is intersected, it should prove productive. The probable distance you may have to drive you can very much better get from your own agent than I can possibly give you. Returning again to the main engine-shaft, the manager, finding the first lode a failure, and satisfying himself that Penistreuth lode (one of the best in the neighbourhood) could be reached by a cross-cut from the engine-shaft, has continued this said cross-cut, but up to the present no lode has been intersected. This has been a tedious operation, as already it has been driven 65 fathoms. It has now entered the kilas, and, from the fact of the rock being faced with sulphur and spots of copper, one might suppose it indicates the near approach of the lode. After duly considering your position, I really cannot suggest any improvement on what you are doing; but, although the mine hitherto has been deceptive when the lode has been intersected and laid open in the kilas

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ever we have cut an increase of water, coming from the capes of the lode, which augurs well for improvement. In the 210 north we have cut into the leading part of the lode which looks very promising; we have about 2 fms. more of the capel to strip down to reach the extreme end, and hope to speak favourably of this point in our next advice. The winze in advance of the end, in bottom of the 196, we shall still sink by the side of the lode until a communication is effected. A stope in bottom of the 196, still further north, is worth 26d. per fathom. In the 182 south we have a very kindly lode, worth 5d. per fathom. At Smith's engine-shaft, in the 210 north and south, very little has been done in either of the ends since our last report, in consequence of a breakage which let in the water; this, however, is again put all right, and the drivage is going on vigorously. In the 196, north of Chippindale's shaft, it is pleasing to say the lode is still worth 14d. per fathom. We shall sample to-morrow (Wednesday) a little above our estimated quantity, 70 tons.

THE SOUTH AFRICAN GOLD FIELDS—BLAKE'S STONE-BREAKER.—For some time past the powerful little machine introduced into this country at the close of the International Exhibition of 1862 by Mr. H. R. MARSDEN, of the Soho Foundry, Leeds, has found extensive and continually increasing employment in connection with our mines; but, although its simplicity and efficiency have frequently been referred to in the *Mining Journal*, the actual cost of crushing a ton of ore with it is, perhaps, still known only to those who are using it. From the large number of mines in England, in Australia, and in California (where five machines are in full work on a single mining property, that of Colonel Fremont), there are great facilities offered in every mining district for those interested to inspect the machines in actual work; and, as the manufacturer has now received a testimonial that one of his machines is crushing hard ores at a cost of only 1d. per ton—including steam-power, labour, and oil—it's great economy will be apparent, the cost when ordinary machinery is used averaging fully six times that amount. It is now proposed to send it to the newly-discovered gold fields of South Africa, where its great simplicity, the small amount of power it takes, and the large amount of work it will do, are sure to cause it to be thoroughly appreciated. But few ore-crushing machines have had the advantage of being so speedily adopted, and but few have enjoyed such a continuation of gratifying success; not only have its merits been recognised by the award of prizes at the various Exhibitions, but all who have practically applied it have willingly certified its excellence.

THE TIN TRADE, AND ITS PROSPECTS.—The excellent price obtained for the tin offered at the Dutch sale on Wednesday must be a matter for congratulation to all interested in the prosperity of the tin trade, more especially as every possible effort had been made both here and in Holland to depress the market by the offer of the metal, "ex next sale," at prices much below that justified by the relative position of supply and demand for the article. The whole of the 89,587 slabs having been cleared off at 54½ fls. has, no doubt, disengaged the "bears," many of whom lose about 5 per cent. upon the price. The rumour circulated at the beginning of the month produced temporarily a bad effect on the market, but its inaccuracy having since been established, firmness has been entirely restored, and, as Mr. L. Th. van Houten very truly remarks, there is everything to indicate "a better and brighter prospect for our tin market in future." The demand for tin is infinitely better than at the corresponding period of last year, whilst the stock is at least 1500 tons less—the total stock of Banca is at present only 177,133 slabs, against 189,650 slabs at the corresponding period of last year, whilst the yield of British tin has much diminished—the figures for the last two years published showing a diminution of more than 11 per cent., the diminution having been from 9990 tons in 1866 to 8700 tons in 1867. But for this fact it would have been difficult to account for the large quantity of the Banca tin purchased at the sale by English smelters at a first cost of 94½ tons per ton. The result of the sale has caused considerable animation in the shares of tin mines generally, and it is understood that the opportunity will be availed of to commence the development of a very valuable concession for a tin property in the East Indies, covering some hundreds of English square miles. Whether considered from a geological or mineralogical point of view, it is impossible to find a region which offers more favourable data for the presence of rich stream tin deposits than the property included in the concession, and in this respect it can certainly vie with the best parts of either Banca or Billiton. The tin lies at a depth of from 5 to 25 ft. from surface, and is only covered with sand and clay; sufficient exploratory operations have been effected, and at the points which promise immediate returns everything has been prepared for commencing operations at once. The services of an engineer of considerable experience at Banca, and plenty of skilled labour being readily obtainable, arrangements could be at once entered into for raising the tin by contract at (say) 20 fls. per pecul, which (considering that 54½ fls. per pecul was realised in Batavia at public sale only so late as August 12 for 5000 peculs of Billiton tin of certainly not better quality) would leave a profit of more than 34 fls. per pecul, or nearly 44½ per ton of tin, so that ample return for outlay might be obtained without sending too much tin into the market. Whether for British or foreign tin mines the prospects are excellent, and there is no reason to fear that those prospects will be blighted.

GOLD MINING IN ITALY.—The report of Mr. Arthur Dean upon the Pestarena Mines has been issued to the shareholders. Every detail is fully entered into, and many valuable suggestions are made with reference to the future working of the properties. Mr. Dean describes the mines as essentially good, and capable of great and profitable extension; that a large amount of expensive work has been executed to bring the mines into a proper state, from which results in gold are now only beginning to arise, but will be greatly augmented when those works approach their completion; that the execution of the permanent works, simultaneously with seeking to get out a large produce of gold at too early a period, has delayed profits, which upon a different system would now be in a course of realisation to a large extent; that the works for the development of the mines are well planned, and as they approach completion are likely to produce good returns; that the new reduction-works are well built and arranged, and the machinery for direct amalgamation is of the first-class, and not surpassed anywhere; that with two years grace for the completion of the necessary works the shareholders will probably be relieved from all anxiety with respect to large dividends in the future; and that the mines and reduction works have been, and are still well managed, and that fair value is represented by the work done.

FRONTINO AND BOLIVIA.—It is satisfactory to observe that the position of this undertaking still appears to improve. As will be seen by the advices (which appear in another column), Mr. Rouch states that the Italia Mine suit has been unconditionally gained, and that he considers that fact the "most important occurrence which has taken place since he undertook the management of the mines." He has also gained the Mulatos suit, and the addition of these mines to the company's property is most valuable to the concern. He states, also, that Frontino will become a capital mine in driving 15 fathoms further. A remittance of 318 ozs. of gold has been received, and Mr. Rouch promises to send the produce of some "jaquas," a sample of which received, some time ago, gave the enormous result of 24½, from merely 12 lbs. weight of stuff. It is gratifying that Mr. Rouch repeats that the anticipations of success he and his able colleague, Greiff, have formed will be gradually and ultimately fully realised.

MINING EXCHANGE.—At the annual meeting of members, on Wednesday, a resolution was passed re-electing Mr. Peter Watson the Chairman of the institution for the ensuing year.

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MR. J. S. MERRYS, ASSAYER AND ANALYTICAL CHEMIST, SWANSEA.

* * With last week's Journal a SUPPLEMENTAL SHEET was given, which contains description of Wilson's Puddling Boiler and Furnace (illustrated)—Original Correspondence: Letters on Special Education for Working Men—the International Congress of Working Men—Mineral Properties—Investment in Coal and Slate Properties—Notes of a Journey to Western America—Sterne's Springs for Mine Cages (illustrated)—Generation of Steam-power by Gas (Jackson's Patent) (illustrated)—Steel and Iron Boilers—Mineral Production of the Zollverein—A Model Railway Company, &c., &c.

The Mining Market; Prices of Metals, Ores, &c.

METAL MARKET—LONDON, OCT. 2, 1868.

COPPER.	£ s. d.	£ s. d.
Best selected, p. ton	75 0 0	76 0 0
Tough cake and tile	73 0 0	74 0 0
Sheathing & sheets	77 10 0	78 0 0
Bolts	73 0 0	—
Bottoms	81 0 0	—
Old (Exchange)	68 0 0	70 0 0
Burra Burra	89 0 0	—
Wire...per lb.	0 0 10½	—
Tubes	0 0 11½	—
BRASS.	Per lb.	—
Sheets,per lb.	73½d.—8½d.	—
Wire	8d.—	—
Tubes	10½d.—	—
Yellow Metal Sheath.p. lb.	6½d.—7d.	—
Sheets	6½d.—6¾d.	—
SPELTER.	Per ton.	—
Foreign on the spot	£20 5 0	20 10 0
" to arrive	20 10 0	—
ZINC.	Per ton.	—
In sheets	£24 10 0	25 0 0
TIN.	Per ton.	—
English blocks	96 0 0	0 0
Do, bars (in barrels)	57 0 0	—
Do, refined	98 0 0	—
Banca	£36 0 0	27 0 0
Straits	95 0 0	26 0 0
TIN-PLATES.*	Per box.	—
IC Charcoal, 1st qua.	1 5 6 1 8 6	6
IX Ditto, 1st quality	1 11 6 1 14 6	6
IC Ditto, 2d quality..	1 4 6 1 5 6	6
IX Ditto, 2d quality..	1 10 6 1 11 6	6
IC Coke.....	1 1 6 1 2 0	0
IX Ditto	1 7 6 1 8 0	0
Canada plates.p. ton	13 10 0	0
Ditto, at works	12 10 0	—
LEAD.	Per ton.	—
Englsh Pig, com...	19 0	0 19 10 0
Ditto, LB.....	19 5	0 5
Ditto, WB.....	21 10 0	—
Ditto, sheet	20 0 0	—
Ditto, red lead	21 0 0	—
Ditto, white	27 0	0 30 0 0
Ditto, patent shot	22 0	0 22 10 0
Ditto, Spanish.....	18 10 0	—

* At the works, 1s. to ls. 6d. per box loss.

REMARKS.—The fluctuations that have taken place in our market are of trifling extent, notwithstanding there has been rather more animation this week than lately.

COPPER.—The demand has not been so good, and sellers in consequence have submitted to lower prices. The prospects of the market are not particularly encouraging. Yellow metal is to be bought at easy rates.

IRON.—The orders given out for rails have had the effect of imparting a firm tone to the market, and enabling ironmasters to command increased rates. Merchant bars continue to hold a good position, and buyers have to pay full prices. Some of the Staffordshire works are quoting 5s. per ton higher for bars, hoops, and nail rods, but this advance does not appear to be very freely paid. In Swedish bars there has not been quite so much doing, but prices have not in the least given way, and as the season for shipments from Sweden is now drawing to a close it is not improbable a gradual improvement may take place. Very little change is recorded in the value of Scotch pigs—a steady market for most part, with no greater variation in price than 3d. to 6d. per ton.

LEAD.—The demand for Russia, America, and China continuing good, sellers have succeeded in obtaining slightly enhanced rates; it is thought that the disturbances in Spain may in some measure interfere with supplies from that country, and should there be any serious falling off an important rise may be experienced.

SPELTER.—The stock in London is reduced to 89½ tons, but this does not seem to help the market, as the demand remains inactive.

TIN.—The leading event of the week has been the sale of Banca at Rotterdam, which took place on Wednesday. The quantity brought forward consisted of 89,587 slabs, which realised 54½ fls. also 1421 slabs of Billiton, at 54 fls. The demand exceeded the supply 25 per cent., and orders had to be reduced accordingly. The buying was by no means evenly distributed, and, unlike most former occasions, there have been no lots offering since the sale at the price and terms of the sale. Many "bears," no doubt, have been caught, and will have to cover at a considerable loss. Prices of Banca and Straits are both rapidly advancing, and will maintain a more elevated position than hitherto. On 'Change our market was very excited, and buyers were very anxious to secure tin. A little Straits had changed hands during the day at 94½, and afterwards 94½ tons was offered and refused, holders asking 96½, but it did not transpire that this was realised. The price of Banca since the sale has advanced to 56 fls., and the market closes with a strong upward tendency.

TIN-PLATES.—A slight reduction has been made in prices, and buyers experience less difficulty in placing orders at their limit.

STEEL.—A few sales have been effected in Swedish keg, and prices at present have undergone no actual change, although the market assumes an upward tendency.

QUICKSILVER.—No alteration to note in the quotations of this metal.

THE TIN TRADE.—Mr. L. Th. van Houten (Rotterdam, Sept. 28) writes—Our tin market opened very firm in the beginning of the month, but was thrown into a very unsettled state on the arrival of the East India mail, reporting the existence of a large stock of tin in the island of Banca on March 31 of about 89,000 peculs. Several parties crediting this report, and nobody being able to give satisfactory explanation about it, lower prices were accepted by some holders, and a large business was also done for delivery ex next sale at declining prices. Subsequently official information, given by the Colonial Department, has shown that a large stock of tin always accumulated in Banca at that time of this year, kept back by great difficulties in shipping to Java during that period (the stock of tin in Banca on Jan. 31, 1867, being 53,000 peculs), and confidence was consequently very soon restored, buyers coming forward for large quantities, which again brought prices to their former level, holders mostly refusing to sell. In expectation of the result of the Trading Company's sale of the 30th Inst. the following figures, as we believe, fully warrant a better and brighter prospect for our tin market in future. The production of English tin for 1867 shows (see last week's *Mining Journal*) a great falling off with last year—8700 tons, against 9990 tons in 1866. The floating quantity of Banca tin now on the way to Holland is much smaller than was generally expected, it being now only 13,150 peculs, equal to 815 tons, while the actual export of Straits tin from Penang and Singapore to England and the Continent from Jan. 1 to July 31 this year is only 49,247 peculs, against 64,259 peculs same time last year. Banca tin was sold at 64 fls. in the beginning of the month, but upon the receipt of the news from Banca, referred to above, the price went down to 52½ fls., which was also accepted for some lots deliverable ex next sale. Confidence returning upon the explanation officially given by the Colonial Department, a good demand sprang up, and 54½ fls. on the spot, and 53½ fls. deliverable ex next sale was paid, large quantities of the latter changing hands, and there are still buyers to-day for both descriptions at these quotations. Billiton tin was followed to the same course as Banca, and 52 fls. was accepted for floating parcels, and 51½ fls. for tin on the spot; however, the market recovering again, 53 fls. and 53½ fls. respectively were again paid, at which prices there are still buyers. In the public sale of 5000 peculs Billiton tin, held in Batavia on Aug. 12, 54½ fls. per pecul was paid, equal to 52½ fls. ex ship here. The position of Banca tin in Holland on Sept. 28, according to the Official Returns of the Dutch Trading Company, show—

1868.	1867.	1866.
Import in September.....	Slabs 15,746	8,289
Total nine months.....	85,309	77,628
Deliveries in September	12,170	9,750
Total nine months	98,317	85,349
Stock second hand.....	65,892	187,906
Unsold stock	111,241	1,654
Total stock	177,133	189,550
Stock of Billiton.....	6,209	9,522
Import in September	4,300	—
Deliveries in September	4,550	—
Quotation p. Banca.....	54 fls.	55 fls.
Sep. 28 p. Billiton	53½ fls.	48½ fls.

These returns, compared with those of 1867, exhibit—An increase of the import for September of 225 tons, an increase of the import for the nine months of 238 tons, an increase of the deliveries for 74 tons, an increase of the deliveries for the nine months of 311 tons, a decrease of the stock second hand of 373 tons, an increase of the unsold stock of 339 tons, a decrease of the total stock of 385 tons, and a decline of the quotation of Banca of 17.18s. per ton. The quantity of Banca tin now afloat for the Dutch Trading Company is 18,100 peculs,

equal to 815 tons, against 19,600 peculs, equal to 1215 tons, last year. The Government returns for the month of July are as follows:—

EXPORT OF TIN FROM HOLLAND.

	July.	Seven months.

in the price of shares, which closed at, but hardly sustaining, 12*l*. 2*s*. 6*d*. per share (2*l*. 10*s*. paid), and they range now from 12*l*. 10*s*. buyers, 12*l*. 12*s*. 6*d*. sellers, for cash. But the demand is not great at even the lower quotation. Mining Company of Ireland shares derived some benefit from the improvements in the other mining shares, and have advanced from 15*l*. 2*s*. 6*d*. last week's closing price, to 15*l*. 5*s*. and are much wanted at that figure. There are, however, several offers to sell at 15*l*. 10*s*. (7*l*. paid). Connorree shares have not been taken for the last few days at the previous quotation of 4*s*. 6*d*. per share, but there are enquiries for them at 4*s*. 3*d*. Killaloe Slate Quarry shares continue firm, at 18*s*. 6*d*. ex dividend. Cape Copper shares commanded 12*l*. 5*s*. but are not much dealt in.

The directors' and agent's reports on the Killaloe Slate Quarries, on the left bank of the Shannon, county Tipperary, have not yet resumed the importance which they commanded some 25 years ago, when the quarries were worked by an English proprietary, under the title of the Imperial Slate Company, and when more than 700 men and boys found lucrative employment there, and about 10,000 tons of slate per annum were returned. But an old-fashioned and improvident system of working of late years has imposed much labour and loss of time to remove debris from off some of the best parts of the slate vein, which, when accomplished, with the necessary perseverance and engineering skill, will, undoubtedly, re-open a vast field for further profitable employment of the fine and industrious race of people of that neighbourhood, and handsomely reward the present owners. Much credit is due to them that in the comparatively short time they have been at work they have succeeded in removing so much of the ill-effects of former mismanagement, and bringing the quarries again into a profitable state of working; and there can be no doubt that if they persevere with the same energy which they have hitherto brought to bear on the property it will prove one of the most successful enterprises of the kind in Ireland. By the directors' report, it appears that the last half-year's total receipts for slates and increase of stock amount to 4794*l*. 16*s*. 11*d*, against a total expenditure of 3882*l*. 4*s*. (including interest on borrowed capital), leaving a net surplus of 912*l*. 12*s*. 11*d*. This amount would have enabled the company to declare a dividend of 10 per cent., and to carry 100*l*. to the credit of the current half-year. But the directors, in the face of the amount due to the company's bankers, considered it more prudent to recommend the payment of a dividend of 6 per cent. only, which the shareholders have adopted. In the gross receipts during the past six months there is an increase over the corresponding period of last half-year from 3988*l*. to 4794*l*. or of 806*l*. while in the expenditure there is an increase only of 272*l*. or from 3610*l*. to 3882*l*. At the same time, great progress has been made in more effectually laying open the quarries for future working, by the removal of large quantities of waste, and by further clearing the unproductive overburden. Besides this, the machinery at present necessary is in excellent condition and efficiency, comprising two steam-engines, dressing and hoisting machinery, &c., so as to render the prospects of future good results from the quarries most satisfactory.

During the quarter ending Sept. 30 the quantity of copper ore, the produce of Cornwall and Devonshire, sold at the Cornish Ticketing, was 28,414 tons, which contained 1852 tons 9 cwt. of fine copper, and realised 113,064*l*. 3*s*. 6*d*. being equal to an average of 3*l*. 13*s*. 6*d*. per ton of ore, and 6*l*. 1*s*. per ton of copper in the ore. During the same period the British, colonial, and foreign ores sold at Swansea amounted to 11,572 tons, which contained 1477 tons 11 cwt. of fine copper, and realised 100,875*l*. 7*s*. 6*d*. being equal to an average of 9*l*. 10*s*. 6*d*. per ton of ore, and 6*l*. 5*s*. 6*d*. per ton of copper in the ore. The average produce of the ore sold at the Cornwall Ticketings was 6*l*. per cent., whilst that sold at Swansea gave an average produce of 12*l*. per cent. From this it will be seen that the aggregate sales by ticket were 39,986 tons of ore, containing 3330 tons of fine copper, and realising 213,039*l*. 11*s*. The subjoined is a summary of the periodical sales at the Cornwall and Swansea Ticketings respectively:

The ores sold at the Cornwall Ticketings were—

Date.	Stand.	Prod.	Per ton.	Tons.	Fine cop.	Amount.
July 2.	£109 5 .. 6 <i>%</i> ..	£3 19 0 ..	12 <i>s</i> . 10 <i>d</i> .	2802 .. 476	4 ..	£6,579 6 0
" 9 ..	108 1 .. 5 <i>%</i> ..	3 18 0 ..	12	4 .. 1482 ..	87 14 ..	5,399 13 6
" 23 ..	104 6 .. 6 <i>%</i> ..	3 19 6 ..	12	4 .. 3488 ..	224 15 ..	13,866 3 0
" 30 ..	97 15 .. 7 <i>%</i> ..	4 10 0 ..	12	1/2 .. 2413 ..	179 1 ..	10,865 0 6
Aug. 6 ..	102 15 .. 6 <i>%</i> ..	3 18 6 ..	11	9 .. 3093 ..	193 5 ..	11,349 13 0
" 13 ..	105 14 .. 5 <i>%</i> ..	3 9 6 ..	11	9 .. 2318 ..	136 8 ..	8,042 5 6
" 20 ..	105 3 .. 6 <i>%</i> ..	4 0 0 ..	12	5/2 .. 3754 ..	241 6 ..	15,044 1 6
" 27 ..	97 9 .. 7 <i>%</i> ..	4 18 0 ..	12	5/2 .. 1622 ..	127 2 ..	7,926 8 0
Sept. 3 ..	103 5 .. 6 <i>%</i> ..	4 2 6 ..	12	4/2 .. 1669 ..	111 3 ..	6,888 12 0
" 10 ..	104 19 .. 5 <i>%</i> ..	3 4 0 ..	11	3/2 .. 1155 ..	65 8 ..	3,687 3 0
" 17 ..	104 19 .. 6 <i>%</i> ..	3 18 0 ..	12	4 .. 3522 ..	223 7 ..	13,750 0 6
" 21 ..	98 7 .. 7 <i>%</i> ..	4 6 6 ..	12	0 .. 2236 ..	160 16 ..	9,665 16 0
Total for the quarter	28,414 ..	1,852 9 ..	£113,064 3 6			
Quarter ending June, 1868	31,644 ..	2,026 9 ..	141,281 0 6			
Quarter ending March, 1868	29,781 ..	1,942 4 ..	133,390 19 6			
Quarter ending December, 1867	30,981 ..	2,058 3 ..	142,140 6 6			
Total for the year	120,820 ..	7,879 5 ..	£529,876 10 0			
Showing a quarterly average of	30,205 ..	1,969 15 ..	132,469 2 6			
Corresponding quarter, Sept., 1867, 20,410 ..	20,008 14 ..	137,216 19 0				

The ores sold at the Swansea Ticketings were—

Date.	Stand.	Prod.	Per ton.	Tons.	Fine cop.	Amount.
July 14 ..	£91 4 6 .. 17 ..	£11 15 10 ..	12 <i>s</i> . 10 <i>d</i> .	2802 .. 476	7 ..	£33,042 16 6
" 21 ..	89 17 0 .. 10 <i>%</i> ..	7 3 7 ..	13 2 <i>%</i> ..	1340 ..	145 14 ..	9,620 12 0
Aug. 11 ..	89 9 0 .. 10 <i>%</i> ..	6 12 0 ..	13 0 ..	1886 ..	190 19 ..	12,447 15 0
Sept. 1 ..	92 4 6 .. 13 <i>%</i> ..	9 5 8 ..	13 0 ..	10 <i>l</i> . 2 <i>s</i> . 6 <i>d</i> .	2862 .. 382 16 ..	26,573 12 6
" 22 ..	90 6 .. 16 <i>%</i> ..	11 8 2 ..	13 7 <i>%</i> ..	1682 ..	281 15 ..	19,190 7 0
Total for the quarter	10,572 ..	1,477 11 ..	£100,875 7 6			
Quarter ending June, 1868	12,997 ..	1,888 3 ..	141,028 10 6			
Quarter ending March, 1868	5,127 ..	869 1 ..	61,906 3 6			
Quarter ending December, 1867	10,592 ..	2083 9 ..	148,827 12 6			
Total for the year	38,628 ..	6,618 4 ..	£529,876 14 0			
Showing quarterly average of	9,657 ..	1,578 6 ..	113,158 3 6			
Corresponding quarter, Sept., 1867, 8,881 ..	1202 0 ..	86,038 8 6				

The Bank of England return for the week ending on Wednesday evening showed, in the ISSUE DEPARTMENT, an increase in the "notes issued" of £129,245*l*., which is represented by a corresponding increase in the "coin and bullion" on the other side of the account. In the BANKING DEPARTMENT there is shown a decrease in "other deposits" of 465,063*l*., and in "the rest" of 845*l*., together 473,521*l*; and increase in the "public deposits" of 199,457*l*; and in the "seven day and other bills" of 16,432*l*; together, 206,889*l* = 266,632*l*. On the asset side of the account there is an increase in the "Government securities" of 150,000*l*., and in the "other securities" of 367,997*l* = 517,997*l*, showing a total decrease in the reserve of 784,629*l*.

At Spears Consols Mine meeting, on Sept. 22, the accounts showed a debit balance of 89*l*. 9*s*. The report of the agent stated that there were twelve pitches working on tribute, varying from 12*s*. to 18*s*. In 11 : 90 persons were employed in the mine.

A telegram was received yesterday afternoon from the agent of East Wheal Grenville, saying a branch had just been intersected in the 55 f.m. level cross-cut, worth 1*1/2* ton of copper ore per fathom. This is not the lode, which is still a-head,

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COAL MARKET.—The fresh arrivals this week number 114 ships. The colder weather produced an active demand for house coals, and a large business was done at an advance of 3*d*. to 6*d*. per ton on last week's quotations. Hartley's in steady request, and advanced 3*d*. Hetton Wallsend, 19*s*. 6*d*.; Hartlepool Wallsend, 17*s*. 9*d*.; Tees Wallsend, 18*s*. 9*d*.; Gosforth Wallsend, 16*s*.; Kelloe Wallsend, 16*s*. 9*d*.; South Hartlepool, 16*s*. 9*d*.; New Belmont Wallsend, 16*s*. Trimdon Grange Wallsend, 15*s*. 6*d*. Unsold, 7 cargoes: 15 at sea.

At Redruth Ticketing, on Thursday, 2535 tons of ore were sold, realising 9239*l*. 6*s*. 6*d*. The particulars of the sale were:—Average standard, 103*l*. 2*s*.; average produce, 6*s*; average price per ton, 3*l*. 13*s*.; quantity of fine copper, 157 tons 4 cwt. The following are the particulars of the sales during the past month:—

Date.	Tons.	Standard.	Produce.	Per ton.	Ore.	Price.
Sept. 3 ..	1669 ..	£103 5 0 ..	7 <i>%</i> ..	£4 2 6 ..	12 <i>s</i> . 4 <i>d</i> .	£61 18 6
" 10 ..	1155 ..	104 19 0 ..	5 <i>%</i> ..	3 4 0 ..	11 3 <i>%</i> ..	56 7 6
" 17 ..	3522 ..	104 19 0 ..	6 <i>%</i> ..	3 18 0 ..	12 4 ..	61 11 0
" 24 ..	2236 ..	98 7 0 ..	7 <i>%</i> ..	4 6 6 ..	10 0 ..	60 2 0
Oct. 1 ..	2533 ..	103 2 0 ..	6 <i>%</i> ..	3 18 0 ..	11 9 ..	58 15 0

Compared with last week's sale, the advance has been in the standard 1*l*. 2*s*. and in the price per ton of ore about 1*s*. 6*d*. Compared with the corresponding sale of last month, the decline has been in the standard 1*l*. and in the price per ton of ore about 1*s*. 3*d*.

The following dividends were declared during September:—

Mines.	Per share.	Amount.
Great Laxey	£10 10 ..	£7,500 0 0
Devon Great Consols	6 0 0 ..	6,144 0 0
South Cadron	5 0 0 ..	2,560 0 0
Great Wheal Vor	0 7 6 ..	2,215 10 0
Tincroft	0 5 0 ..	1,500 0 0
Foxdale	0 10 0 ..	1,400 0 0
East Pool	7 10 0 ..	960 0 0
Wheal Mary Ann	0 17 6 ..	896 0 0
Providience	0 10 0 ..	560

ever we have cut an increase of water, coming from the capes of the lode, which augurs well for improvement. In the 210 north we have cut into the leading part of the lode which looks very promising; we have about 2 fms. more of the capel to strip down to reach the extreme end, and hope to speak favourably of this point in our next advice. The winze in advance of this end, in bottom of the 196, we shall still sink by the side of the lode until a communication is effected. A stop in bottom of the 196, still further north, is worth 22d. per fathom. In the 152 south we have a very kindly lode, worth 5d. per fathom. At Smith's engine-shaft, in the 210 nor. h and south, very little has been done in either of the ends since our last report, in consequence of a breakage which let in the water; this, however, is again put all right, and the drivage is going on vigorously. In the 196, north of Chippindale's shaft, it is pleasing to say the lode is still worth 14d. per fathom. We shall sample tomorrow (Wednesday) a little above our estimated quantity, 70 tons.

THE SOUTH AFRICAN GOLD FIELDS—BLAKE'S STONE-BREAKER.—For some time past the powerful little machine introduced into this country at the close of the International Exhibition of 1862 by Mr. H. R. MARSDEN, of the Soho Foundry, Leeds, has found extensive and continually increasing employment in connection with our mines; but, although its simplicity and efficiency have frequently been referred to in the *Mining Journal*, the actual cost of crushing a ton of ore with it is, perhaps, still known only to those who are using it. From the large number of mines in England, in Australia, and in California (where five machines are in full work on a single mining property, that of Colonel Fremont), there are great facilities offered in every mining district for those interested to inspect the machines in actual work; and, as the manufacturer has now received a testimonial that one of his machines is crushing hard ores at a cost of only 1d. per ton—including steam-power, labour, and oil—it's great economy will be apparent, the cost when ordinary machinery is used averaging fully six times that amount. It is now proposed to send it to the newly-discovered gold fields of South Africa, where its great simplicity, the small amount of power it takes, and the large amount of work it will do, are sure to cause it to be thoroughly appreciated. But few ore-crushing machines have had the advantage of being so speedily adopted, and but few have enjoyed such a continuation of gratifying successes; not only have its merits been recognised by the award of prizes at the various Exhibitions, but all who have practically applied it have willingly certified its excellence.

THE TIN TRADE, AND ITS PROSPECTS.—The excellent price obtained for the tin offered at the Dutch sale on Wednesday must be a matter for congratulation to all interested in the prosperity of the tin trade, more especially as every possible effort had been made both here and in Holland to depress the market by the offer of the metal, "ex next sale," at prices much below that justified by the relative position of supply and demand for the article. The whole of the 89,587 slabs having been cleared off at 54½ fms. has, no doubt, discomfited the "bears," many of whom lose about 5 per cent. upon the price. The rumour circulated at the beginning of the month produced temporarily bad effect on the market, but its inaccuracy having since been established, firmness has been entirely restored, and, as Mr. L. Th. van Houten very truly remarks, there is everything to indicate "a better and brighter prospect for our tin market in future." The demand for tin is infinitely better than at the corresponding period of last year, whilst the stock is at least 1500 tons less—the total stock of Banca is at present only 177,133 slabs, against 189,650 slabs at the corresponding period of last year, whilst the yield of British tin has much diminished—the figures for the last two years published showing a diminution of more than 11 per cent., the diminution having been from 9990 tons in 1866 to 8700 tons in 1867. But for this fact it would have been difficult to account for the large quantity of the Banca tin purchased at the sale by English smelters at a first cost of 94½ tons per ton. The result of the sale has caused considerable animation in the shares of tin mines generally, and it is understood that the opportunity will be availed of to commence the development of a very valuable concession for a tin property in the East Indies, covering some hundreds of English square miles. Whether considered from a geological or mineralogical point of view, it is impossible to find a region which offers more favourable data for the presence of rich stream tin deposits than the property included in the concession, and in this respect it can certainly vie with the best parts of either Banca or Billiton. The tin lies at a depth of from 5 to 25 ft. from surface, and is only covered with sand and clay; sufficient exploratory operations have been effected, and at the points which promise immediate returns everything has been prepared for commencing operations at once. The services of an engineer of considerable experience at Banca, and plenty of skilled labour being readily obtainable, arrangements could be at once entered into for raising the tin by contract at (say) 20 fms. per pecul, which (considering that 54½ fms. per pecul was realised in Batavia at public sale only so lately as August 12 for 5000 peculs of Billiton tin of certainly not better quality) would leave a profit of more than 34 fms. per pecul, or nearly 44½ per ton of tin, so that ample return for outlay might be obtained without sending too much tin into the market. Whether for British or foreign tin mines the prospects are excellent, and there is no reason to fear that those prospects will be blighted.

GOLD MINING IN ITALY.—The report of Mr. Arthur Dean upon the Pestarena Mines has been issued to the shareholders. Every detail is fully entered into, and many valuable suggestions are made with reference to the future working of the properties. Mr. Dean describes the mines as essentially good, and capable of great and profitable extension; that a large amount of expensive work has been executed to bring the mines into a proper state, from which results in gold are now only beginning to arise, but will be greatly augmented when those works approach their completion; that the execution of the permanent works, simultaneously with seeking to get out a large produce of gold at too early a period, has delayed profits, which upon a different system would now be in a course of realisation to a large extent; that the works for the development of the mines are well planned, and as they approach completion are likely to produce good returns; that the new reduction-works are well built and arranged, and the machinery for direct amalgamation is of the first-class, and not surpassed anywhere; that with two years grace for the completion of the necessary works the shareholders will probably be relieved from all anxiety with respect to large dividends in the future; and that the mines and reduction works have been, and are still well managed, and that fair value is represented by the work done.

FRONTINO AND BOLIVIA.—It is satisfactory to observe that the position of this undertaking still appears to improve. As will be seen by the advices (which appear in another column), Mr. Rouch states that the Italian Mine suit has been unconditionally gained, and that he considers that fact the "most important occurrence which has taken place since he undertook the management of the mines." He has also gained the Mulatos suit, and the addition of these mines to the company's property is most valuable to the concern. He states, also, that Frontino will become a capital mine in driving 15 fathoms further. A remittance of 318 ozs. of gold has been received, and Mr. Rouch promises to send the produce of some "jaquas," a sample of which received, some time ago, gave the enormous result of 24½, from merely 12 lbs. weight of stuff. It is gratifying that Mr. Rouch repeats that the anticipations of success he and his able colleague, Greiff, have formed will be gradually and ultimately fully realised.

MINING EXCHANGE.—At the annual meeting of members, on Wednesday, a resolution was passed re-electing Mr. Peter Watson the Chairman of the institution for the ensuing year.

RAILS OF PERMANENT WAY, CONTRACTORS' AND COLLIERIES SECTIONS, CHAIRS, FISH-PLATES, SWITCHES, AND CROSSINGS.

Sundry lots of RAILS, suitable for sidings, &c., ON SALE, by—

Mr. ROBERT WRIGHTSON, NEWPORT, MONMOUTHSHIRE.

1. ENGINES AND BOILERS FOR SALE.

MESSRS. NICHOLLS, MATHEWS, AND CO. have FOR SALE ENGINES of VARIOUS SORTS and SIZES, and SEVERAL GOOD TEN TON BOILERS. All are in excellent condition, and well worthy the attention of purchasers.

Full particulars may be obtained by applying to Messrs. NICHOLLS, MATHEWS and CO., Tavistock Foundry, Tavistock.

MR. J. S. MERRYS, ASSAYER AND ANALYTICAL CHEMIST, SWANSEA.

* * * With last week's Journal a SUPPLEMENTAL SHEET was given, which contains a description of Wilson's Puddling Boiler and Furnace (illustrated)—Original Correspondence: Letters on Special Education for Working Men—the International Congress of Working Men—Mineral Properties—Investment in Coal and Slate Properties—Notes of a Journey to Western America—Sterne's Springs for Mine Cages (illustrated)—Generation of Steam-power by Gas (Jackson's Patent) (illustrated)—Steel and Iron Boilers—Mineral Production of the Zollverein—A Model Railway Company, &c., &c.

The Mining Market; Prices of Metals, Ores, &c.

METAL MARKET—LONDON, OCT. 2, 1868.

COPPER.	£ s. d.	£ s. d.	IRON.	Per ton.
Best selected...p. ton	75	0	Tough cake and tile	76 0 0
75	0	76	Bars Welsh, in London	6 10 0
73	0	74	To arrive	6 10 0
77	10	0	Nail rods	6 15 0
Boats	78	0	" Staffd.	7 10 0
Bottoms	81	0	" ditto	8 0 0
Old (Exchange)	68	0	Hoops	8 2 6
Burra Burra	80	0	Sheets, single	9 2 11
Wire...per lb	0	10 ½	Pig No. 1, in Wales	3 15 0
Tubes	0	9 11 ½	Refined metal, ditto	4 0 5
			Bars, common ditto	4 0 0
			Do, murch, Tyne or Tees	6 10 0
			Do, railway, in Wales	6 0 0
			Do, Swed, in London	10 0 0
			To arrive	10 0 0
			Pig, No. 1, in Clyde	2 14 3
			2 18 3	
			Do, f.o.b., Tyne or Tees	2 9 6
			2 7 9	
			Do, Nos. 3, 4, f.o.b., do	2 6 6
			Railway chairs	5 10 0
			" spikes	11 0 0
				12 0 0
ZINC.			Indian Charcoal Pigs,	
In sheets.....£24	10	0 25 0 0	in London, p. ton	7 0 0 7 10 0
			STEEL.	Per ton.
TIN.			Swed., in kgs.(rolled),	—
English blocks.....	66	0 0	Ditto, in faggots	15 0 0 15 10 0
Do., bars (in barrels)	97	0 0	Englsh, spring	17 0 0 23 0 0
Do., refined.....	98	0 0	QUICKSILVER (p. bottle)	16 17 0 0
Banca.....£96	0 0 97 0 0		LEAD.	Per ton.
Straits.....25	0 0 96 0 0		English Pig, com...	19 0 0 19 10 0
			Ditto, LB.	19 5 0 0
			Ditto, WB.	21 10 0
			Ditto, sheet	20 0 0
			Ditto, red lead	21 0 0
			Ditto, white	27 0 0 30 0 0
			Ditto, patent shot	22 0 0 22 10 0
			Spanish	18 10 0
				—
				At the works, 1s. to 1s. 6d. per box less.

REMARKS.—The fluctuations that have taken place in our market are of trifling extent, notwithstanding there has been rather more animation this week than lately.

COPPER.—The demand has not been so good, and sellers in consequence have submitted to lower prices. The prospects of the market are not particularly encouraging. Yellow metal is to be bought at easy rates.

IRON.—The orders given out for rails have had the effect of impressing a firm tone to the market, and enabling ironmasters to command increased rates. Merchant bars continue to hold a good position, and buyers have to pay full prices. Some of the Staffordshire works are quoting 5s. per ton higher for bars, hoops, and nail rods, but this advance does not appear to be very freely paid. In Swedish bars there has not been quite so much doing, but prices have not in the least given way, and as the season for shipments from Sweden is now drawing to a close it is not improbable a gradual improvement may take place. Very little change is recorded in the value of Scotch pigs—a steady market for most part, with no greater variation in price than 3d. to 6d. per ton.

LEAD.—The demand for Russia, America, and China continuing good, sellers have succeeded in obtaining slightly enhanced rates; it is thought that the disturbances in Spain may in some measure interfere with supplies from that country, and should there be any seizure falling off an important rise may be experienced.

SPelter.—The stock in London is reduced to 89 tons, but this does not seem to help the market, as the demand remains inactive.

TIN.—The leading event of the week has been the sale of Banca at Rotterdam, which took place on Wednesday. The quantity brought forward consisted of 89,587 slabs, which realised 54½ fms., also 1421 slabs of Billiton, at 54 fms. The demand exceeded the supply 25 per cent., and orders had to be reduced accordingly. The buying was by no means evenly distributed, and, unlike most former occasions, there have been no lots offering since the sale at the price and terms of the sale. Many "bears," no doubt, have been caught, and will have to cover at a considerable loss. Prices of Banca and Straits are both rapidly advancing, and will maintain a more elevated position than hitherto. On 'Change our market was very excited, and buyers were very anxious to secure tin. A little Straits had changed hands during the day at 94½, and afterwards 94½ tons was offered and refused, holders asking 96½, but it did not transpire that this was realised. The price of Banca since the sale has advanced to 56 fms., and the market closes with a strong upward tendency.

TIN-PLATES.—A slight reduction has been made in prices, and buyers experience less difficulty in placing orders at their limit.

STEEL.—A few sales have been effected in Swedish keg, and prices at present have undergone no actual change, although the market assumes an upward tendency.

QUICKSILVER.—No alteration to note in the quotations of this metal.

TIN TRADE.—Mr. L. Th. van Houten (Rotterdam, Sept. 28) writes—Our tin market opened very firm in the beginning of the month, but was thrown into a very unsettled state on the arrival of the East India mail, reporting the existence of a large stock of tin in the Island of Banca on March 31 of about 89,000 peculs. Several parties crediting this report, and nobody being able to give satisfactory explanation about it, lower prices were accepted by some holders, and a large business was also done for delivery ex next sale at declining prices. Subsequently official information, given by the Colonial Department, has shown that a large stock of tin always accumulated in Banca at that time of this year, kept back by great difficulties in shipping to Java during that period (the stock of tin in Banca on Jan. 31, 1867, being 83,000 peculs), and confidence was consequently very soon restored, buyers coming forward for large quantities, which again brought prices to their former level, holders mostly refusing to sell, in expectation of the result of the Trading Company's sale of the 30th Inst. The following figures, as we believe, fully warrant a better and brighter prospect for our tin market in future. The production of English tin for 1867 shows (see last week's *Mining Journal*) a great falling off with last year—8700 tons, against 9990 tons in 1866. The floating quantity of Banca tin now on the way to Holland is much smaller than was generally expected, it being now only 13,150 peculs, equal to 815 tons, whilst the actual export of Straits from Penang and Singapore to England and the Continent from Jan. 1 to July 31 is 1866. The total, 1867. The total, 1868. The total, 1869. The total, 1870. The total, 1871. The total, 1872. The total, 1873. The total, 1874. The total, 1875. The total, 1876. The total, 1877. The total, 1878. The total, 1879. The total, 1880. The total, 1881. The total, 1882. The total, 1883. The total, 1884. The total, 1885. The total, 1886. The total, 1887. The total, 1888. The total, 1889. The total, 1890. The total, 1891. The total, 1892. The total, 1893. The total, 1894. The total, 1895. The total, 1896. The total, 1897. The total, 1898. The total, 1899. The total, 1900. The total, 1901. The total, 1902. The total, 1903. The total, 1904. The total, 1905. The total, 1906. The total, 1907. The total, 1908. The total, 1909. The total, 1910. The total, 1911. The total, 1912. The total, 1913. The total, 1914. The total, 1915. The total, 1916. The total, 1917. The total, 1918. The total, 1919. The total, 1920. The total, 1921. The total, 1922. The total, 1923. The total, 1924. The total, 1925. The total, 1926. The total, 1927. The total, 1928. The total, 1929. The total, 1930. The total, 1931. The total, 1932. The total, 1933. The total, 1934. The total, 1935. The total, 1936. The total, 1937. The total, 1938. The total, 1939. The total, 1940. The total, 1941. The total, 1942. The total, 1943. The total, 1944. The total, 1945. The total, 1946. The total, 1947. The total, 1948. The total, 1949. The total, 1950. The total, 1951. The total, 1952. The total, 1953. The total, 1954. The total, 1955. The total, 1956. The total, 1957. The total, 1958. The total, 1959. The total, 1960. The total, 1961. The total, 1962. The total, 1963. The total, 1964. The total, 1965. The total, 1966. The total, 1967. The total, 1968. The total, 1969. The total, 1970. The total, 1971. The total, 1972. The total, 1973. The total, 1974. The total, 1975. The total, 1976. The total, 1977. The total, 1978. The total, 1979. The total, 1980. The total, 1981. The total, 1982. The total, 1983. The total, 1984. The total, 1985. The total, 1986. The total, 1987. The total, 1988. The total, 1989. The total, 1990. The total, 1991. The total, 1992. The total, 1993. The total, 1994. The total, 1995. The total, 1996. The total, 1997. The total, 1998. The total, 1999. The total, 1990. The total, 1991. The total, 1992. The total, 1993. The total, 1994. The total, 1995. The total, 1996. The total, 1997. The total, 1998. The total, 1999. The total, 1990. The total, 1991. The total, 1992. The total, 1993. The total, 1994. The total, 1995. The total, 19

in the price of shares, which closed at, but hardly sustaining, 12d. 2s. 6d. per share (2d. 10s. paid), and they range now from 12d. 10s. buyers, 12d. 12s. 6d. sellers, for cash. But the demand is not great at even the lower quotation. Mining Company of Ireland shares derived some benefit from the improvements in the other mining shares, and have advanced from 15d. 2s. 6d., last week's closing price, to 15d. 5s., and are much wanted at that figure. There are, however, several offers to sell at 15d. 10s. (7d. paid). Connoree shares have not been taken for the last few days at the previous quotation of 4s. 6d. per share, but there are enquiries for them at 4s. 3d. Killaloe Slate Quarry shares continue firm, at 18s. 6d., ex dividend. Cape Copper shares commanded 12d. 5s., but are not much dealt in.

The directors' and agent's reports on the Killaloe Slate Quarries, on the left bank of the Shannon, county Tipperary, have not yet resumed the importance which they commanded some 25 years ago, when the quarries were worked by an English proprietary, under the title of the Imperial Slate Company, and when more than 700 men and boys found lucrative employment there, and about 10,000 tons of slate per annum were returned. But an old-fashioned and improvident system of working of late years has imposed much labour and loss of time to remove debris from off some of the best parts of the slate vein, which when accomplished, with the necessary perseverance and engineering skill, will, undoubtedly, re-open a vast field for further profitable employment of the fine and industrious race of people of that neighbourhood, and handsomely reward the present owners. Much credit is due to them that in the comparatively short time they have been at work they have succeeded in removing so much of the ill-effects of former mismanagement, and bringing the quarries again into a profitable state of working; and there can be no doubt that if they persevere with the same energy which they have hitherto brought to bear on the property it will prove one of the most successful enterprises of the kind in Ireland. By the directors' report, it appears that the last half-year's total receipts for slates and increase of stock amount to 4794l. 16s. 11d., against a total expenditure of 3882l. 4s. (including interest on borrowed capital), leaving a net surplus of 912l. 12s. 11d. This amount would have enabled the company to declare a dividend of 10 per cent., and to carry 100/- to the credit of the current half-year. But the directors, in face of the amount due to the company's bankers, considered it more prudent to recommend the payment of a dividend of 6 per cent. only, which the shareholders have adopted. In the gross receipts during the past six months there is an increase over the corresponding period of last half-year from 3988l. to 4794l., or of 806l., while in the expenditure there is an increase only of 272l., or from 3610l. to 3882l. At the same time, great progress has been made in more effectually laying open the quarries for future working, by the removal of large quantities of waste, and by further clearing the unproductive overburden. Besides this, the machinery at present necessary is in excellent condition and efficiency, comprising two steam-engines, dressing and hoisting machinery, &c., so as to render the prospects of future good results from the quarries most satisfactory.

During the quarter ending Sept. 30 the quantity of copper ore, the produce of Cornwall and Devonshire, sold at the Cornish Ticketing, was 28,414 tons, which contained 1852 tons 9 cwt.s. of fine copper, and realised 113,064l. 3s. 6d. being equal to an average of 3d. 10s. 6d. per ton of ore, and 61l. 1s. per ton of copper in the ore. During the same period the British, colonial, and foreign ores sold at Swansea amounted to 11,572 tons, which contained 1477 tons 11 cwt.s. of fine copper, and realised 100,875l. 7s. 6d. being equal to an average of 9d. 10s. 6d. per ton of ore, and 68s. 5s. 6d. per ton of copper in the ore. The average produce of the ore sold at the Cornwall Ticketings was 6s. per cent., whilst that sold at Swansea gave an average produce of 12s. per cent. From this it will be seen that the aggregate sales by ticket were 39,986 tons of ore, containing 3330 tons of fine copper, and realising 213,939l. 11s. The subjoined is a summary of the periodical sales at the Cornwall and Swansea Ticketings respectively:-

The ores sold at the Cornwall Ticketings were:-

Date.	Stand.	Prod.	Per ton.	Per unit.	Tons.	Fine cop.	Amount.
July 2..	£109	5 ..	6½ ..	£3 19 0 ..	12s. 10½ d.	1,667 ..	102 4 .. £ 6,579 3 6
" 9..	108 1 ..	5½ ..	3 13 0 ..	12 4 ..	1482 ..	87 14 .. 5,09 13 6	
" 23..	104 6 ..	6½ ..	3 19 6 ..	12 4 ..	3433 ..	224 15 .. 13,866 3 0	
" 30..	97 15 ..	7½ ..	4 10 0 ..	12 1½ ..	2413 ..	179 1 .. 10,865 0 6	
Aug. 6..	102 15 ..	6½ ..	3 13 6 ..	11 9 ..	3098 ..	193 5 .. 11,349 13 0	
" 13..	105 14 ..	5½ ..	3 9 6 ..	11 9 ..	2318 ..	136 8 .. 8,042 5 6	
" 20..	105 3 ..	6½ ..	4 0 0 ..	12 5½ ..	3734 ..	241 6 .. 15,044 1 6	
" 27..	97 9 ..	7½ ..	4 18 0 ..	12 5½ ..	1622 ..	127 2 .. 7,926 8 0	
Sept. 3..	103 5 ..	6½ ..	4 2 6 ..	12 4½ ..	1669 ..	111 3 .. 6,888 12 0	
" 10..	104 19 ..	5½ ..	3 4 0 ..	11 3½ ..	1155 ..	65 8 .. 3,687 3 0	
" 17..	104 19 ..	6½ ..	3 18 0 ..	12 4 ..	3522 ..	223 7 .. 13,750 0 6	
" 24..	98 7 ..	7½ ..	4 6 6 ..	12 0 ..	2256 ..	160 16 .. 9,663 16 0	
Total for the quarter.....					28,414 ..	1,852 9 .. £113,064 3 6	
Quarter ending June, 1868.....					31,644 ..	2026 9 .. 141,281 0 6	
Quarter ending March, 1868.....					29,781 ..	1942 4 .. 133,890 19 6	
Quarter ending December, 1867.....					30,981 ..	2058 3 .. 142,469 2 6	
Total for the year.....					120,820 ..	7879 5 .. £529,876 10 0	
Showing a quarterly average of					30,205 ..	1969 15 .. 132,469 2 6	
Corresponding quarter, Sept., 1867, 20,410 ..					2008 14 ..	137,216 19 0	

The ores sold at the Swansea Ticketings were:-

Date.	Stand.	Prod.	Per ton.	Per unit.	Tons.	Fine cop.	Amount.
July 14..	£101 4 6 ..	17 ..	£11 15 10 ..	13s. 10½ d.	2802 ..	476 7 .. £33,042 16 6	
" 21..	89 17 0 ..	10% ..	7 3 7 ..	13 2½ ..	1340 ..	145 14 .. 9,620 12 0	
Aug. 11..	89 9 0 ..	10% ..	6 12 0 ..	13 0 ..	1886 ..	190 19 .. 12,447 19 0	
Sept. 1..	92 4 6 ..	13% ..	5 8 ..	13 10½ ..	2862 ..	382 16 .. 26,578 12 0	
" 22..	90 6 6 ..	16% ..	11 8 2 ..	13 7½ ..	1682 ..	281 15 .. 19,190 7 0	
Total for the quarter.....					10,572 ..	1477 11 .. £100,875 7 6	
Quarter ending June, 1868.....					12,397 ..	1883 3 .. 141,023 10 6	
Quarter ending March, 1868.....					5,127 ..	869 1 .. 61,906 3 6	
Quarter ending December, 1867.....					10,532 ..	2083 9 .. 148,827 12 6	
Total for the year.....					58,628 ..	6313 4 .. 452,632 14 0	
Showing a quarterly average of					9,657 ..	1578 6 .. 113,158 3 6	
Corresponding quarter, Sept., 1867, 8,881 ..					1202 0 ..	86,033 8 6	

The ores sold at the Swanso Ticketings were:-

Date.	Stand.	Standard.	Produce.	Per ton.	Per unit.	Tons.	Fine cop.	Amount.
July 14..	£101 4 6 ..	17 ..	£11 15 10 ..	13s. 10½ d.	2802 ..	476 7 .. £33,042 16 6		
" 21..	89 17 0 ..	10% ..	7 3 7 ..	13 2½ ..	1340 ..	145 14 .. 9,620 12 0		
Aug. 11..	89 9 0 ..	10% ..	6 12 0 ..	13 0 ..	1886 ..	190 19 .. 12,447 19 0		
Sept. 1..	92 4 6 ..	13% ..	5 8 ..	13 10½ ..	2862 ..	382 16 .. 26,578 12 0		
" 22..	90 6 6 ..	16% ..	11 8 2 ..	13 7½ ..	1682 ..	281 15 .. 19,190 7 0		
Total for the quarter.....					10,572 ..	1477 11 .. £100,875 7 6		
Quarter ending June, 1868.....					12,397 ..	1883 3 .. 141,023 10 6		
Quarter ending March, 1868.....					5,127 ..	869 1 .. 61,906 3 6		
Quarter ending December, 1867.....					10,532 ..	2083 9 .. 148,827 12 6		
Total for the year.....					58,628 ..	6313 4 .. 452,632 14 0		
Showing a quarterly average of					9,657 ..	1578 6 .. 113,158 3 6		
Corresponding quarter, Sept., 1867, 8,881 ..					1202 0 ..	86,033 8 6		

At Redruth Ticketing, on Thursday, 2535 tons of ore were sold, realising 9239l. 6s. 6d. The particulars of the sale were:-Average standard, 103l. 2s.; average produce, 6½; average price per ton, 3d. 13s.; quantity of fine copper, 157 tons 4 cwt.s. The following are the particulars of the sales during the past month:-

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Tons.	Fine cop.	Amount.
Sept. 3 ..	1669 ..	£103 5 0 ..	7½ ..	£4 2 6 ..	12s. 4½ d.	201 8 ..	106 ..	£6,579 3 6
" 10 ..	1155 ..	104 19 0 ..	5½ ..	3 4 0 ..	11 3½ ..	56 7 6 ..	74 ..	5,09 13 6
" 17 ..	3522 ..	104 19 0 ..	6½ ..	3 18 0 ..	12 4 ..	61 11 0 ..	62 ..	15,044 1 6
" 24 ..	2236 ..	98 7 0 ..	7½ ..	4 6 6 ..	12 0 ..	60 2 0 ..	56 ..	12,447 19 0
Oct. 1 ..	2353 ..	103 2 0 ..	6½ ..	3 13 0 ..	11 9 ..	58 15 5 ..	48 ..	9,620 12 0
Compared with last week's sale, the advance has been in the standard 17.2s., and in the price per ton of ore about 1s. 6d. Compared with the corresponding sale of last month, the decline has been in the standard 17., and in the price per ton of ore about 1s. 3d.								
The following dividends were declared during September:-								
Mine.	Per share.	Amount.						
Great Laxey ..	£0 10 0 ..	£ 7,500 0 0						
Devon Great Consols ..	6 0 0 ..	6,144 0 0						
South Caradon ..	5 0 0 ..	2,560 0 0						
Great Wheal Vor ..	0 7 6 ..	2,215 10 0						
Tincroft ..	0 5 0 ..	1,500 0 0						
Foxdale ..	0 10 0 ..	1,400 0 0						
East Pool ..	7 10 0 ..	960 0 0						
Wheal Mary Ann ..	0 17 6 ..	896 0 0						
Providence ..	0 10 0 ..	560 0 0						
South Croft ..	0 10 0 ..	468 10 0						
Don Pedro North del Rey ..	0 3 0 ..	11,424 6 0						
Alamillos ..	0 2 0 ..	3,500 0 0						
Fortuna ..	0 2 6 ..	3,125 0 0						
Linares ..	0 3 4 ..	2,500						

[Oct. 3, 1868.]

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Railway and Commercial Gazette.

LONDON, OCTOBER 3, 1868.

OUR COAL AND IRON TRADES.

The Mineral Statistics for 1867 contain a vast amount of most valuable information, and when taken in conjunction with those of former years point out the progress made in the development of those important branches of our national industry. Thus from year to year we are enabled to see whether our coal, iron, and mineral trades generally have been active or otherwise, and through them trace the condition of most other branches of business, seeing that on the former the success or otherwise of so many others depend. Looking, therefore, at the statistics relating to the coal trade, it may be stated that the increase during 1867 has been considerably less than in former years. In 1864 the increase over the previous year was 4,495,358 tons; in 1865 it was 5,127,145 tons; whilst in 1866 it had fallen to 3,497,956 tons; and last year the decrease was still greater, being only 2,869,936 tons. Looking at the various coal-producing districts, it is rather singular to find that many of those which were formerly noted for their large yearly increase have shown a considerable falling off, whilst others of less importance have shown a marked increase. Singularly enough, the most extensive of our coal fields, and which heads the list as producing the largest quantity of coal in the kingdom, shows the greatest falling off during the year. Thus, although Durham and Northumberland last year raised no less than 24,867,444 tons, yet that was less by 327,106 tons than was raised during 1866. On the other hand, the comparatively small district of Shropshire shows what may be termed extraordinary results, for whilst it is only credited with 1,220,700 tons for 1866, yet last year it increased its output to 1,558,500 tons, or equal to over 20 per cent. In Derbyshire, which is destined to become one of the principal seats of the coal trade, and where just now there are more large collieries being opened out than in almost any other county in England, there has been a considerable falling off. This, however, was not owing to a shortness of trade, or deficient demand, but to the strike which, in the first instance, existed at the extensive collieries at Staveley and Clay Cross for the first three months of the year, and afterwards in the Burton-on-Trent district for a long time after the former had been settled. Future years will show a very different result so far as Derbyshire is concerned. Leicestershire, another of those comparatively unimportant districts which hitherto have made but little progress, now shows in advance of most others, and whilst in 1866 it only raised 866,560 tons, last year it sent out no less than 1,150,000 tons, being an increase of 283,440 tons, equal to 32 per cent, a rise which may be termed really extraordinary. One of the smallest producing counties is Warwickshire, and it also shows that it is not falling behind its neighbour, for it exhibits an increase of the year of 13 per cent. on 880,850 tons. In Gloucester and Somerset, where the yield has been under two millions, the yield for the year has been in excess of 1866 by nearly 7 per cent. In South Wales the tonnage raised last year shows a considerable falling off when compared with the previous one, the returns giving 9,092,300 tons for 1867, against 9,376,445 tons for 1866, or a loss in the year of 284,145 tons. On the other hand, in North Wales, where the production is of a very limited character, there has been a considerable increase, the quantity for last year, as shown by the statistics, being 2,371,250 tons, against 2,082,600 tons for 1866, an excess of 289,250 tons.

Amongst the large coal-producing districts, those of Scotland appear to advantage, the total quantity raised for the past year being 14,125,943 tons, against 12,625,000 for the previous one, an increase of no less than 1,500,943 tons. The very small tonnage of coal raised in Ireland—125,000 tons—shows an excess over the year of 1250 tons only. Looking at the extensive development of several new districts in Nottingham—where some new seams of coal have just been discovered—Leicester, and other places, future years will show great changes with regard to the production of coal, and although it may

be that some of the oldest districts may gradually fall off, so far as regards production, yet it is evident that others are starting into existence, which will be capable of supplying their deficiency, and more. Turning to the production of iron ore and iron for the year, some very important and even startling facts are to be gleaned by comparison with former periods. In one instance in particular the change is of such an extraordinary character as to be almost beyond belief, were it not for the very reliable character of the statistics. Thus we find that in 1866 Monmouthshire raised only 60 tons of ore, of the value of 15*s.*, whilst last year it is credited with 341,057 tons, of the value of 86,040*l.* 10*s.* This is a rise which, if correct, far surpasses anything in the mineral history of the kingdom which we can recollect. The next greatest increase has taken place in the West Riding, being no less than 22,000 tons for the year; whilst the North Riding, on the other hand, shows a falling off of 70,022 tons; whilst North Staffordshire has increased its production to the extent of more than 13 per cent. The southern division shows a decrease to about the same amount. The largest decrease on the year, however, is to be found with regard to Scotland, where the quantity raised in 1867 was only 1,264,800 tons, against 1,587,000 tons for the previous year, the decrease being 322,200 tons. Matters have been better in South Wales, where the tonnage raised has in excess of that of 1866 by 132,494, but in the northern part of the Principality there was a decline to the extent of 12,600 tons. Herefordshire and Oxfordshire, in which small quantities of ore were formerly obtained, appear to have dropped out altogether, as there are no returns from them. The total yield for last year shows an increase of 356,046 tons.

There has been during the past year an increase in the quantity of pig-iron made of 237,126 tons, to which Durham has very largely contributed, the tonnage being 477,884 tons for 1867, against 298,867 tons for 1866, the excess being 179,017 tons, considerably more than 55 per cent. The North Riding of Yorkshire also contrasts favourably with the other iron-making districts of the country, showing a yield of no less than 94,801 tons in favour of the year; next to which stands Lancashire, with a balance in its favour, over 1866, of upwards of 50,000 tons. Northamptonshire, as one of the growing districts, and in which the iron trade may be said to be in its infancy, shows an increase during the year of 6010 tons; and Lincolnshire, which may be included in the same category, has also improved during the year to the extent of 11,816 tons. On the other side there has been a decrease in the following counties:—Cumberland, 26,506 tons; Derbyshire, 39,839 tons; Northumberland, 19,429 tons; North and South Staffordshire, 25,000 tons; and the West Riding of Yorkshire, 10,745 tons. Wales shows a decrease of no less than 33,892 tons, but which is more than counterbalanced by the excess output of Scotland, which was 37,000 tons. Looking at the year 1867, although the increase has not been very large, still the make of pig-iron cannot be looked upon as in any way unsatisfactory.

STEAM-BOILERS AT IRON WORKS.

We are sure that we cannot be doing a greater service to the iron-masters of this country than by continuing to remark upon the importance of their boilers being placed under independent inspection. It was only a month ago that we had occasion to advert to the subject, because of the painful accident that had occurred at the Mersey Steel and Iron Works. During the past week there has occurred another catastrophe of the same class, and, unhappily, of a yet more disastrous character. On this occasion 11 men and boys have been killed, and there is reason to fear that at least some three or four others will yet expire. The accident occurred at the Moxley Steel and Iron Works, belonging to Mr. THOMAS WELLS, whose place of business is between Wednesbury and Bilston, in South Staffordshire. We have examined the boiler, and the evidences seem to us to be those which might be expected to be observed in a boiler originally good, but which, after 14 years constant wear and frequent repairs, could hardly be worked with safety at a pressure equal to that which was set down for it when it was new, especially if the pressure—in this case 34 lbs.—was quite as much as it should have been made to carry. The fierce flames of four furnace fires supplied it with heat. Such intense action soon burnt away the bottom plates. These were three times renewed, and then the substituted and the adjoining plates patched with tolerable frequency. By every repair the boiler, as originally constructed, became weaker. Further, there are traces of considerable and long-continued leakage from the escape-pipe, till the thickness of the plates, originally nearly $\frac{1}{2}$ inch thick (correctly 7-16th in.), are reduced at that point to about $\frac{1}{4}$ in. Looking down into the fire-brick flue upon which the boiler rested, we notice traces of leakage fretted into the glazed surface of the bricks. Comparing these evidences with the state of the tubes below the boiler, we found rivets in a state quite sufficient to confirm the previously-formed opinion. The care of the proprietor of the works to prevent an explosion was abundantly shown in the profusion of steam-valves for the escape of surplus steam, alike from each boiler and from the whole set. The set consisted of two furnace-boilers and two firing-boilers; the last two were, one a Cornish and the other a patent Galloway. Usually they are worked three on and one off, but at the time of the accident all four were on. Three are supposed to be sufficient at full pressure to do the work assigned to them, which is that of supplying power to the engine to work a sheet-mill and a forge-mill. The fact that there has been only one fatal accident at the works from the time the oldest portion of the establishment was laid down (in 1845) till this occurrence abundantly proves that the operations are usually conducted with great care. In that case the accident had no connection with the steam—the engineman was killed by getting his arm in the shears.

We have the fullest belief that everyone in charge of the works, or any portion of them, had the most complete confidence in the security of the boiler, and of its fitness to continue to carry the pressure put upon it. But our conviction is only a little less strong, that if this boiler had been under such inspection as that which boiler assurance companies provide the proprietors and their workpeople would have been so fully informed as to its condition, that it would have been long ago either laid off or had its pressure very greatly reduced. The damage done to the works may be repaired at an outlay of, perhaps, 800*l.* Both in that respect and likewise in regard to the fatal consequences which have followed, this explosion (even if the whole 15 should die) will be less destructive than the one which in 1862 laid much of the Millfields Finished Iron Works in ruins, and killed 28 persons. The boilers in each case were of a similar size and construction, and, singularly enough, in both cases a workman was blown into the canal, and his corpse fished up after the ruins had been searched for it in vain.

A professional account of the cause of the accident will be given in evidence yet to be supplied to the coroners, who would seem to be adopting every measure to furnish their juries with the fullest information as to their correct cause. It was the Millfields accident which induced the ironmasters of South Staffordshire to start the Midland Steam-Boiler Inspection and Assurance Company. Here and there throughout that district there are ironmasters who still regard the provisions they have made for the security of their machinery so complete as to make it unnecessary for them to incur the expense either of insurance or inspection. Mr. WELLS would seem to be of this minority. Himself a practical man, having an experience of nearly half a century, he had made, as we have just intimated, every apparent provision for obviating such a calamity. These were probably well enough at the time they were made, but they soon required revision. Such revision would have been secured if the modern advantages presented in the inspection companies had been accepted.

Within the past few days another boiler accident has occurred at an iron works in this kingdom, the circumstances attending which go more forcibly to show how valuable is the assistance which ironmasters have at their command in associations of the class of which we have been speaking. In that case a Cornish boiler, originally fired internally, was now fired outside, with the flame passing through the tube. It collapsed from end to end, so completely that the top part was forced down almost to the bottom of the tube. It was working at about 50 lbs. to the inch, yet the tube was originally so weak that it was not fit to work without material strengthening. The top had flattened somewhat, so that the diameter of the tube, which may have been, for instance, 3 feet 6 inches in one place became 3 feet 3*o.* 4 inches in another. By these, all Mr. FAIRBAIRN's calculations

show that such a tube ought to have been strengthened by at least one substantial wrought-iron ring. We happen to know that the proprietor of the boiler proposed it for inspection and assurance to the Boiler Inspection Company in his district, but the engineer refused to accept it unless the ring we have mentioned should be placed round it. The proprietor of the machinery entertained the fullest confidence in his engineer, who did not believe in the necessity for the strengthening operations described, and declined to undertake the expense. Thereupon the premium which had been paid to the assurance company was sent back, and the risk declined. That negotiation took place some three years ago. True to the almost inevitable consequences, the boiler, as we have said, has just collapsed, and collapsed so thoroughly as to prove its entire weakness, and at the same time demonstrates the accuracy of Mr. FAIRBAIRN's calculations, and the wisdom of the Assurance Company in refusing to accept its care. It is a cause for satisfaction that when the collapse took place most of the workpeople were out of the way. By the collapse the brickwork by which it was surrounded was blown out with great force from each end in particular, and the boiler, which occupied the other side of a wall abutting on the towing-path of the canal, was forced out of its bed, and for a time interfered with the traffic.

We very strongly urge upon the proprietors of boilers at mines and iron works that they should none of them any longer place confidence in their own workpeople alone, but that they should, for their own comfort, rid themselves of as much of the responsibility which now rests upon them in the event of accidents happening, when the services of the associations we talk of are not invoked. It is clear that the public mind is becoming alive to the provision for safety which these associations provide, and already we observe in connection with the Moxley accident that that feeling has begun to find expression in a somewhat prominent manner.

NEW SYSTEM OF IRON AND STEEL MAKING—No. III.

BY G. J. AND T. C. HINDE.

The whole of the wrought or malleable iron produced in Great Britain at present is made from pig-iron, either in the charcoal refinery or in the puddling-furnace. Besides the carbon requisite for rendering metallic iron fusible, we generally find coke-smelted pig-iron alloyed with one or more of the elements silicon, sulphur, phosphorus, aluminium, calcium, magnesium, and occasionally with some others. Upon the more or less complete removal of these, together with nearly the whole of the carbon, depends the quality of the malleable iron. No method has been devised of removing these substances while in their elementary or metallic state, hence it is necessary to combine them with oxygen before they can be separated. This oxidation may be effected either by exposing them at a high temperature to the action of atmospheric air, or by bringing them in contact with solid bodies containing an excess of oxygen, such as peroxide of manganese, peroxide of iron, the nitrate salts, and some other analogous substances. Prior to the introduction of puddling, the charcoal refinery was the only means used for converting cast into malleable iron. The pig-iron was melted down with charcoal into the hearth, and there exposed to the action of the blast until the carbon, silicon, sulphur, &c., were so far oxidised that the iron assumed the pasty, welding condition of malleable iron, and was then taken to the hammer as a "loup" or "bloom," the oxidised impurities of volatile nature passing off in a gaseous condition, while the more permanent, such as silica, remained in the cinder. The potash formed by the combustion of the fuel largely assisted this operation. It is a well-known principle that chemical reactions are much more readily effected where new combinations of matter can be formed, than where the object is simply to break up an existing combination. The potash from the fuel has a great affinity for silica; and by thus enabling the silicon at the moment of its oxidation to enter into a new compound, silicate of potash, greatly facilitates the oxidation of the silicon; while the silicate of potash, being of a very fusible nature, forms a bath of molten cinder or slag, in which the other impurities are readily dissolved. This charcoal refinery process is still in use for some special purposes, as charcoal bars for tin-plates, charcoal horse-nail rods, gun-iron, &c., but the pig-iron is now generally melted down with coke in a cupola or run-out fire, and there blown into the same manner that refined plate-metal is made, and afterwards run into the hearth of the charcoal forge; the object of this preparatory process being, of course, to reduce the quantity of charcoal needed. Whatever may be the merits or defects of this process, the cost and scarcity of charcoal in this country restrict its application to iron for such particular uses as we have named, where the quality must be had irrespective of the price.

About the middle of last century the manufacture of wrought-iron in Great Britain, from the increasing cost and failing supplies of charcoal, had dwindled down to very insignificant proportions, most of the iron for home consumption even being imported from Sweden and Russia, and the records of the Patent Office show the numerous attempts which were made to utilise pit coal in lieu of wood fuel. Cranage, Onions, Cort, and others were all labouring to the same end, and it is difficult now to assign to each his part in the invention of the puddling process, by which their purpose was ultimately accomplished. In its essence, that of oxidising and removing the impurities from the iron, the puddling process is the same as the older method. In the charcoal refinery the object is attained by exposing the pig-iron to the action of oxygen while in contact with a pure fuel. In the puddling-furnace the heat necessary to effect the oxidation operation is generated from an impure fuel, but the combustion of this impure fuel is conducted in a separate chamber, thus avoiding any contact with the iron. There are two varieties of puddling in use—one termed "puddling" and the other "boiling." The "puddling" proper is commonly applied to refined plate metal—i.e., pig-iron which has been passed through a common refinery or run-out fire, or to the less fusible kinds of white pig-iron, while the greyer and more fusible qualities of pig-iron are usually subjected to the method called "boiling." In the puddling process most of the cinder is allowed to run off as formed, and the oxidation is chiefly, therefore, effected by the oxygen of the atmosphere. In the boiling process, on the contrary, the iron is kept nearly immersed in molten cinder. This cinder is formed by the melting of the so-called "fettling," and upon the character of this fettling largely depends the success of the operation in removing the impurities of the cast-iron, their oxidation in this case being effected chiefly by the oxygen furnished by the cinder. In accordance with the chemical law, that bodies are much more prone to enter into new combinations at the moment of emerging from a previous one—or, as it is termed, when in the nascent state—that when they exist in an uncombined state, we should expect to find that the best substances for forming the cinder would be those which not only supplied the oxygen requisite for the oxidation of the impurities, but which afforded a material with which the impurities would readily combine at the moment of oxidation, and this we find to be the case—one of the most suitable, the peroxide of manganese, for example, surrenders a portion of its oxygen to the silicon, while the resulting protoxide of manganese is a body for which the newly-formed silica has the strongest affinity; the union of these two resulting in a very fusible cinder, which greatly assists in dissolving and carrying away the other impurities. The action of peroxide of iron, the nitrates of potash and soda, and of some other oxygen-affording bodies, is precisely similar in principle to that of the peroxide of manganese, though varying in degree, and the use of some of them, independent of questions of cost, is limited by their destructive action on the fire-bricks, and of others by their being too volatile to stand the heat of the furnace. But whichever of the three modes be adopted, whether the charcoal forge, the puddling, or the boiling process, all the malleable iron of Great Britain is made on one principle—that of bringing cast-iron to state of fusion, and while in that state oxidising and removing its impurities. It, therefore, becomes of the utmost importance to ascertain whether this is the true principle of obtaining malleable iron from the ore. If operating on a sound principle, practice and experience, from time to time, will have suggested such improvements in the details and mode of carrying it into effect, that we may expect an approximately satisfactory result to have been achieved; but if, on the contrary, the principle itself is uns

be wrong. Before we can answer this paramount question, whether the right principle of obtaining malleable iron from the ore is the one now adopted—first to convert the iron ore into fusible cast-iron, and then to oxidise out the alloyed matters, by the combination of which its fusibility is produced—we must examine the chemical constitution of the iron ore, and see what are its chemical relations to malleable iron.

We may say that, virtually, the whole of the iron ores used in Great Britain consist of the peroxides and of the carbonates of the protoxide of iron; and these latter are generally converted into peroxides by calcination previous to smelting. No phosphates or sulphates of iron or natural silicates are used in this country; and when the sample is found to contain any considerable quantity of pyrites or sulphide of iron it is generally rejected. Phosphorus and sulphur are found associated with many of the iron ores used in Great Britain, but not often in chemical combination with the oxide of iron. Phosphorus is generally present as phosphate of lime or magnesia, and the sulphur is generally found combined with metallic iron, not the oxide, in the shape of pyrites—*i.e.*, sulphide of iron. No natural silicates of iron are smelted in Britain. We use the term natural silicates because, although the artificial silicate of iron formed in puddling and in the mill furnaces as forge and mill cinders is used, it has no bearing on the point we are now investigating. The silica present in iron ores generally exists either in a free state—as quartz crystals, sand, &c.—or it is combined with alumina, forming the clay from which the clay ironstones obtain their name; and it may be accepted as a general rule that whatever may be the nature or quantity of the extraneous substances accompanying the iron ores smelted in Britain, these substances are only in mechanical association, and not in chemical combination, with the oxides of iron. This is equally true whether we speak of the purest hematite ore, containing 70 per cent., or of a clay ironstone, yielding only 25 per cent. of iron. As the oxide of iron, then, is found uncombined with any other body, it follows that the withdrawal of the oxygen from the oxide should leave pure malleable iron as the result, and experiment confirms this deduction. If we expose a piece of iron ore of any size or description to the action of carbon in a crucible the oxygen is withdrawn from the ore, and malleable iron remains. If the piece of iron ore be of the rich hematite class a solid lump of malleable iron is the result. If the iron ore be associated with much earthy matter the metallic iron is found disseminated amongst, but not combined with, the earthy matter, in thin leaves or veins. Specimens of malleable iron so formed are often found in the calcined heaps of blackband, where the oxygen of the atmosphere has been accidentally excluded, the carbonaceous matter of the blackband having sufficed for the removal of the oxygen from the ore, and the consequent production of pure malleable iron.

Pure malleable iron is infusible in our furnaces, and can only be rendered fusible by combining or alloying it with some other substance; this essential characteristic of pure malleable iron, its infusibility, becoming less marked, and finally ceasing altogether, as the percentage of alloy increases. The converse of this proposition also holds good—that as the percentage of alloy is lessened so the fusibility of the iron is decreased, and if we can remove the alloy altogether we obtain pure infusible malleable iron. We find, then, that the oxide of iron in the ore is not combined with any other body; that the removal of the oxygen from this oxide leaves pure malleable infusible iron; that the condition of fusibility can only be obtained by alloying this pure malleable iron with some other substance which renders it impure, and thus fusible; and that to obtain pure malleable iron from this impure and fusible iron another operation of exactly the reverse character must be performed—that of removing the alloyed matter, thus restoring the iron to its original condition of purity, malleability, and infusibility. As long, therefore, as we obtain malleable iron from the ore by any process which involves the fusion of the iron, so long we are compelled to combine or alloy the pure iron contained in the ore with some alloy or impurity which will impart the property of fusibility, and afterwards subject this fusible impure iron to another operation, expressly to remove that impurity, by the combination of which only were we enabled to render the fusion of the iron practicable. The iron, as we have shown, exists in the ore as pure malleable infusible iron, but united with a certain percentage of oxygen. Remove this oxygen, and the pure malleable iron remains mechanically associated, but not chemically combined, with any earthy matter which was present in the ore. We have before stated that this proposition is demonstrably true by actual experiment upon a piece of iron ore in the crucible; hence, we conclude that a scientifically true process of producing malleable iron would be to obtain the metallic iron which exists in the ore without loss of quantity, and without admixture or alloy, by which its original properties of purity and malleability would be destroyed or lessened. The purity and malleability of iron are, as we have seen, in direct ratio to its infusibility. Any process, therefore, which is based on the fusion of the iron must necessarily destroy its purity and malleability, which have to be restored, so far as they can be restored, but which is never perfectly accomplished, by subsequent operations of a costly and wasteful nature. We, therefore, lay down as the very element and basis of a true process for obtaining malleable iron from the ore, that it must be conducted without having recourse to the fusion of the iron.

[To be concluded in next week's Mining Journal.]

MINING IN SOUTH STAFFORDSHIRE.

South Staffordshire is again brought prominently before the mining world by the publication of the reports of the Government Inspectors. The extent of the mineral capabilities of the district is, according to Mr. BAKER, who has charge of the district on behalf of the Government, such as to induce very grave conclusions in the minds of all persons engaged in the production of iron throughout that famous locality. This Inspector, after showing that out of the 544 collieries referred to in his last report there have been about 300 in operation in the course of the year, producing 10,268,000 tons, remarks that—

"Such a large and continuous drain of the mineral resources of this district must, at no very remote period, and, indeed, within a few years, completely exhaust the supply, so far as the coal can be wrought for the purpose of iron manufacture."

If this be true, something like the death knell of much of the wealth-producing life of that part of the kingdom has been sounded. Mr. BAKER continues—

"There will, however, still be thin seams of coal left, suitable for domestic use. The Royal Commission appointed to enquire into this important question will, however, no doubt ere long, be able more clearly to define the probable duration of this coal field, a matter of the greatest moment to the iron and hardware trades of this important district." Of the greatest moment, most undoubtedly, and pregnant with most serious considerations. Of the rapid consumption of coal in that district we have not, as our readers are aware, been unobservant. At the same time, we have not joined fully in the sentiments of those who have foreboded nothing but evil for the district in question, but have rather desired to give as much prominence as may be to those features which have gone to show that its end is not yet. There are many fuel-saving operations in use, and yet to be adopted, by which the resources of the district may be husbanded, at the same time that there are discoveries yet to be made of the existence of coal within what may be fairly regarded as the boundaries of the district under notice. But the statement here made by Mr. BAKER is sufficiently grave to induce the most thoughtful reflections on the part of those who own the coal, and on the part, likewise, of those who use it. It is a fact by all those to be borne in mind that, notwithstanding the year 1847 being a time of very slack trade, yet the output of coal was larger in that district than in the year before. Now a large quantity of the fuel of South Staffordshire and East Worcestershire leaves the district by rail for distant domestic markets. To this fact the increase spoken of may be chiefly attributed. For instance, the Cannock Chase collieries are devoted almost exclusively to this branch of the trade.

We shall have to refer to this very grave question of the coal supply on another occasion. Meanwhile we will notice one or two encouraging facts in connection with the colliery management of the district under discussion. The coal is being gotten there at gradually reducing amount of life cost. Last year the deaths were 111, whereas the average for the ten years ending with 1860 was 162, and for the seven years ending with last year the average was 112. Still Mr. BAKER thinks that if ordinary care, ability, and supervision had been

exercised by the managers and persons connected with the mines, 30 per cent. of the 111 lives might have been saved.

As is pretty well known, the chief cause of accident in the South Staffordshire district is the fall of roof and coal. From this class of occurrences more than half (the current number is 60) of the deaths have arisen. Of that 60, Mr. BAKER believes that 28 per cent. have been brought about through recklessness, insufficiency of timbering, and what is termed the "hungry" practice of reducing pillars in the thick seams. Of course Mr. BAKER disapproves, as everyone else must, of the abuses which the district displays of the best phases of the butty system; and he dwells with much force upon the extent to which these abuses are fostered by the want of constant supervision on the part of the agents, who are supposed to represent the proprietors. By the butty system the chartermasters, who are the butties, have no other interest than the getting out of the coal as rapidly as possible, regardless of certain interests of the proprietors, which should be watched, if not by himself by his manager. How far these are sufficiently watched is a question upon which Mr. BAKER and some of the ground bailiffs are at issue. How, however, the large number of pits which often comprise one colliery in the district spoken of can be efficiently watched on the part of the proprietors generally by the few men who have the superintendence of them is most certainly a question. Of course increased oversight implies increased cost in the management; but now that the rapid consumption of fuel is occasioning grave forebodings, proprietors will, probably, see it to be their interest to enquire if in the matter of management a somewhat further outlay may not be compatible with ultimate economy.

THE ROYAL CORNWALL POLYTECHNIC INSTITUTION.

The present meeting of this institution promises to be more than usually attractive and successful; the mechanical department, which is always the most important to the mining community, being well supplied with novelties and improvements, and every facility having been given for the merits of the several exhibits to be practically tested. On Wednesday Haupt's Boring-Machine was tested at Falmouth Dock, and the trial was in every respect satisfactory, several holes being bored in a block of granite with considerable speed—in one instance 14 in. being driven in 3½ minutes. The boring apparatus, which is 38 in. long and weighs 150 lbs., is fitted to stands, which afford a freedom of working to various degrees in different directions. With stand it weighs 250 lbs. The machine gives the drilling tool the three same motions that are observable in hand-drilling—the stroke, the revolution, and the feed. All these motions are automatically made by the machine, and are self-adjusting to all differences in the hardness of rocks or varying speed of penetration. It requires about 2-horse power of steam, at 30 to 40 lbs. pressure. It works as well, or even better, with compressed air, and makes any desired number of strokes per minute up to 450. The force of the ordinary stroke is estimated at 200 lbs., but it may be made up to or less by the turning of a screw connected with the valve gear. The smallest size machines will drill holes up to 1½ in. in diameter. Machines may be made to drill holes of any required size. It penetrates from 1 to 6 or 7 (or even more) strokes per minute, according to the hardness of the stone. It will drill 24 in. without changing the drill or stopping the machine, unless required to put in a sharper drill. By putting in longer drilling tools any depth required for blasting purposes may be reached. The drilling tool may be taken out and changed in one minute, and without moving the machine.

Some very successful experiments were likewise made with Nobel's Dynamite, preparation of nitro-glycerine, which is believed to possess all the advantages of that substance with none of its disadvantages. It can only be exploded by a percussion cap, which is ignited by a fuse. Concussion seems to have no effect upon it. The holes are tamped with water. If ignited by a match or similar means it burns harmlessly away. Amongst the other exhibitors were Mr. F. F. Doering, whose boring machine has for some time been in successful operation at Tincroft. Mr. W. Husband, of Hayle, exhibits an improved safety-governor for Cornish pumping-engines, intended to meet a deficiency in mechanical appliance from which many accidents have arisen. Mr. Richardson shows plans of tubular shaft casting with lifting star for mines, introducing winding stops round the side of the shaft, the centre of which is left free. A model of a skip, with self-acting safety-catch, is sent by Mr. Coward, Liskeard; a model of portable stamps, by Mr. F. F. Burrell, Devon; and a model slot link, as applied to working valves of steam-engines, by Messrs. Harvey and Co., of Hayle. Mr. Davey, of Westminster, shews his direct-acting steam-pump; Messrs. Fox, Head, and Co., Middlesborough, samples of their improved covering to prevent radiation; Messrs. Wood and Bayly their pyrometer. Mr. Richard Pearce, formerly of Truro, exhibits a model of a machine for the separation of copper, iron, and other impurities from tin ore. Mr. Jeffery, of Camborne, and Mr. Newton, of St. Day, show collections of mathematical instruments, including miners' theodolites and the like, manufactured by themselves, and of highly creditable workmanship.

Amongst the Awards of more immediate interest to the readers of the *Mining Journal* may be mentioned—A model of a skip-road by Mr. Noah Coward, of East Caradon Mine, was awarded the second bronze medal for the novelty of the invention, and to encourage inventors to perfect a catch that in all cases may be depended on. To the working models of steam-engines by Hennwood, the committee have awarded small prizes of encouragement. For an improved screw-driver, in which, by the ingenious application of a ratchet, great power is obtained, so that it may be worked in more difficult positions than the ordinary driver, the second bronze medal was awarded to Mr. Andrewartha, of Devon. The first silver medal was awarded to Mr. Husband, of Hayle, for his ingenious machine, intended to lessen the force of blow in our Cornish pumping engines in case of breakage or accident, and its value has been tested by being in use some months. The principle of the machine consists in forcing water through an opening, the size of which is regulated by the speed of the engine, over which is fixed a piston connected with the taps or equilibrium handle. While the engine is working at its regular rate of speed this piston is not affected, but should any accident take place the effect will be the opening of the equilibrium handle by the increased pressure on this piston, and thus throwing the steam on the opposite side of the piston, which must naturally reduce the force of the blow upon the catches. For a very well executed plan of East Pool Mine, by the agent, Capt. Maynard, the committee awarded 2nd, and a prize of 10s. ed. was also awarded to a plan by a working miner of West Wheal Lovell (T. B. Provis). The committee also call attention to the excellent plans of the Great Wheal Vor and Great Wheal Fortune Mines, sent for exhibition by Mr. Henderson. The first bronze medal for an improved magneto-electrical machine was awarded to Mr. J. Browning, of London. Dials by Mr. Jeffery, of Camborne, and by Mr. Newton, of St. Day, were highly commended.

MINERS' ASSOCIATION OF CORNWALL AND DEVON.

At the annual meeting of this association, which was presided over by Mr. J. St. Aubyn, M.P., several important and interesting papers were contributed, including one by the Rev. S. Rogers, "On the Progress of the Association," pointing out the necessity for the proper education of the miners. He directed attention to the question of boring-machines, suggested the formation of a library, and advised the purchase of a spectroscope. To develop the resources of the county they required discovery, and the observation and collection of recorded facts. There was likewise one "On the Deep Adit of the Harts," by Mr. Bauermaann, and two by Mr. J. H. Collins, the lecturer to the association, "On Auriferous Drifts and Stream Tin." Mr. Collins' paper dealt with the formation of nuggets in auriferous drift, and recorded the results of many experiments. The conclusions of the author of whom Mr. Collins drew his particulars were that in many cases nuggets increased in size as they lay in the drift; another conclusion was that stream tin had been formed in the same way. A New Process for the Separation of Copper, Iron, and other Heavy Impurities from Tin Ore was well described in a paper by Mr. R. Pearce, formerly lecturer to the association. A very considerable proportion of the tin ore which has been prepared in the usual way for the smelting works in Cornwall contains a number of impurities which cannot be separated by the ordinary processes of washing. Copper does not generally exist in any very large quantities; but its presence in minute proportions very materially affects the quality of the metal. It is generally present in the form of native copper or black sulphide of copper, resulting from imperfect calcination of cupriferous pyrites. Iron is more abundantly found, originating partly in the wear and tear of the stamp-heads, partly as the result of calcination of white and yellow muriate and carbonate of iron. The oxide of tin is so intimately mixed with the oxide of iron that it becomes a matter of utter impossibility to effect proper separation by the ordinary process of washing. It is necessary to grind the oxide of tin to an impalpable powder before a proper isolation of its particles from those of oxide of iron can be effected. This entails extra cost, and a great loss of tin. The loss to miners in setting ores which contain a large percentage of impurities must be very great, as by the ordinary method of assay it is impossible to obtain anything like accurate results. The smelters are accordingly obliged to give a lower standard, as there is infinitely more trouble in smelting. In the St. Just district, where iron and copper are found associated with the tin, some of the miners have for a considerable time used acid in purification. That may be tolerably well adapted to separate the copper, but cannot have much effect upon the iron. Native copper and sulphide of copper are hardly affected by the acids used, unless oxygen in some form is admitted. The plan which Mr. Pearce proposed to adopt, which has been used with great success in the separation of copper and other metals from silver, is to subject the impure tin to the combined action of steam and air in conjunction with a little dilute acid. A mixture of sulphuric and hydrochloric acids will answer well for this purpose, or hydrochloric acid alone. These agencies Mr. Pearce proposes to bring to bear upon the tin in a boiler, into which acid and water are to be put, and the steam turned on. Boiling to be continued for about one hour. By this process the impurities are so far removed or changed in specific gravity that they may be separated with very little trouble by washing. By this means a large quantity of tin ore now sold as of inferior quality may at trifling cost be converted into tin of good quality.

IRON AND STEEL INSTITUTE FOR GREAT BRITAIN.—Our Correspondent, in his "Report from Northumberland and Durham," refers to a highly important paper "On the Position of the Iron Trade in Relation to Technical Education," read at the Quarterly Meeting of Ironmasters at Newcastle, on Tuesday, by Mr. JOHN JONES, which resulted in steps being taken which can scarcely fail to be of material advantage to the iron and steel trade generally. Mr. JONES pointed out that subjects of interest to the iron trade had been dis-

cussed at meetings of various engineering and scientific societies, but that anyone wishing to make a communication to the iron trade had no direct or acknowledged means of reaching that body, or any great section of it. This state of things is the more to be deplored, considering the rapid progress making in foreign countries, and the consequent necessity for the ironmasters of Great Britain to avail themselves of every discovery and improvement in order to maintain their position. To permit of more frequent intercommunication between the various members of the trade, and to give facilities to individuals to make known to the general body their successes or failures, and thus to diffuse the advantages of experience, Mr. JONES hit upon the happy idea of an "Iron and Steel Institute for Great Britain"—a British Association, so to speak, devoted exclusively to the iron and steel trades—at the periodical meetings of which objects of interest to the trade might be exhibited, and a general interchange of opinion take place. The project has been inaugurated under the most favourable auspices, and is certainly deserving of the most complete success.

REPORT FROM SCOTLAND.

SEPT. 30.—The Pig-Iron market has been quiet during the week, with a perceptible want of life; still, a steady business has been transacted, at almost stationary prices. During the month pretty large transactions were entered into, and if the buyers prove good holders, and take the iron out of the market, prices will certainly advance; but if, on the other hand, they prove weak holders, and throw the warrants on the market, a decline is inevitable, and it is, therefore, difficult just now to divine which way quotations may rule when the iron comes to maturity. The shipments for the week show an improvement on the same week of last year, the quantities being respectively this year 14,660 tons, against 13,295 tons in the corresponding week of 1867. To date the imports of Middlesborough iron have increased 38,920 tons over the same period of last year, and Scotch pig-iron has decreased to the same extent in the like period of time. The pig-iron market opened steady on Monday, and business was done at 53s. 7½d. cash, and 53s. 10d. a month; but yesterday the market was weaker, and 53s. 6d. was all that could be obtained, and at the close buyers offered 1d. a ton less. To-day a few thousand tons were disposed of at 53s. 5d. and 53s. 6d. cash, and 53s. 8d. a month, closing firm, buyers 53s. 6d. cash and 53s. 8d. a month, sellers a shade higher. No. 1, g.m.b., 53s. 9d.; No. 3, 52s. 9d.; Coltness, 59s.; Gartsherrie, 58s.; Langloan, 51s. 6d. Bar-iron is extra demand to meet the shipments at the close of the season, now being rapidly proceeded with, but prices are uninfluenced by the temporary briskness. Bar and angle iron also in fair demand, and generally the works are in complete operation. The tin and tube makers at Coatbridge are also full of orders. Coals keep firm in price, with a fair business passing, and the turn of the market is in sellers' favour, especially for the best qualities of house coal for domestic use. Shipping coal is still enquired for, but rather at former rates. During the week just ended the shipments from all the Scotch ports have declined to 32,150 tons, against 34,675 tons for the same week in last year. At a miners' Conference, held on Monday, to hear the replies to the circulars addressed to the coalmasters, noticed last week, the local press has been informed that these were generally favourable to the concession of the advance of 6d. a day, but on making special enquiry of the leading coalmasters in town this forenoon we learn that the greater portion made no reply to the circular at all, and were not likely to concede an advance in the meantime. Those working at the shale pits were in receipt of good wages, but coal oil is only bringing from 1s. 2d. to 1s. 3d. a gallon, and, consequently, shale is only being worked to a limited extent. The ironstone miners in the Maryhill district, the colliers of Govan Works, and those at Fulton Pit, Johnstone district, are on strike, in hope of forcing an advance. Makers of iron have quantities in stock, and, as there is an absence of demand, they are rather inclined to stop their furnaces and bring in their coal to the market, which would have the double effect of keeping down the colliers' wages and the price of coal by the one operation. Miners would require to act cautiously under the circumstances.

There is a report current that Mr. James Baird (Gartsherrie) will contest the Northern Division of Lanarkshire with the present member, Sir E. Colebrooke, but the latter is a general favourite.

REPORT FROM MONMOUTH AND SOUTH WALES.

OCT. 1.—For some weeks past there has been a better feeling evinced in the Iron Trade of this district, and it is satisfactory to find that as the year progresses it is gradually strengthening. In last week's report it was stated that the general opinion prevailing was that no attempt would be made at the preliminary meeting to obtain an advance on list quotations, and such has proved to be correct, as it was believed that such a proceeding would only tend to check business operations, and injure the future prospects of the trade, there being so many of the second-class houses unable to obtain list prices. During the period intervening between the preliminary and final meetings but few transactions are entered into, and the present quarter is no exception to the rule. Although but few transactions have been entered into during the past week, the hands engaged at the leading establishments have been fully employed, chiefly in the completion of Russian engagements, the termination of the navigation season to that country being close at hand. Enquiries continue tolerably numerous, but the actual business transacted has not been for any considerable quantities. There is, however, a greater disposition evinced on the part of buyers to enter into transactions than for some time past, and this gives hopes of an increase taking place in the demand before long. Probably transactions have been somewhat checked by the rumour currently circulated that an effort would be made at the preliminary quarterly meeting to advance prices, but now that question has been settled for the next three months we may look for an increase of orders. During the past two years there has been such a depression in the trade as has not been equalled for a quarter of a century, but as public confidence is being again gradually restored in railway securities, it is not unreasonable to expect that the good feeling which lately sprung up in the home trade will not only be sustained, but steadily improve, until something like former activity and vigour are again witnessed. There is a greater inclination on the part of home buyers to purchase more freely, and now that quotations have been fixed for the next three months it is expected that several fresh engagements will speedily be entered into. There is a considerable decrease in the exports to the United States, and at the principal place of shipment there is only freight to America in the market. There is no doubt that this, to a great extent, is owing to the forthcoming election of President, and until that is settled it is not expected any improvement will be experienced. A few cargoes of rails are being dispatched to Russia, makers being anxious to complete their engagements before the close of the present season. Several Russian agents were present at the preliminary meeting, and this has given rise to a belief that there will be a further demand for rails from the Muscovite empire. The insurrection in Spain is causing some uneasiness in the minds of several makers, and considerable excitement on the Continent, as it is difficult to say what course France will pursue in the event of its success, but should the Emperor decide not to interfere it will not materially affect commercial transactions with continental houses, from which enquiries have of late become more numerous, principally for the miscellaneous descriptions. For pigs of the best brands there is an average demand, and quotations tolerably well maintained. Tin-Plate makers are fairly placed for orders, and as a rule, the works well employed.

In the shipments of Steam Coal there is more activity than for several months past, and there is now unmistakeable signs of an improvement having set in, the favourable winds which prevailed for several days having been the means of enabling a large number of vessels to arrive and leave the ports, thus placing the trade in a more favourable position than it has been for several weeks past. Several vessels of heavy tonnage are now being laden for the East, and clearances being rapidly made. The exports during the past week or ten days will, no doubt, show a very favourable increase. From some of the mail packet stations there are but few enquiries, and until the stocks accumulated there during the Abyssinian expedition are considerably reduced little or no improvement is expected to take place. A very small amount of business is being transacted with Baltic houses, and the exports to that quarter during the present

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season will, no doubt, be below those of the past, the principal orders having been sent to North of England houses. There is a fair amount of business being done with the Mediterranean ports and continental houses, and to the Southern States of America an average quantity is being sent. The House Coal trade has revived to a slight extent, and shipments are being more regularly made; but before anything like a satisfactory state of things is attained the demand will have to largely expand.

During the past week there have been some large importations of calamine, zinc ores, and also copper ores into the port, and the general metal trade of the town and district is evidently improving.

The Ashton Vale Iron Company (Limited) annual meeting was held on Monday at the works, Ashton Vale, under the presidency of Mr. W. H. Miles, the Chairman of the board. The report was adopted after some discussion. On the motion of the Chairman, seconded by Mr. Abbott, Mr. Francis Adams was elected director in the room of Mr. R. C. Ward, deceased, and the retiring directors and auditors were re-elected.

The arrivals at Swansea include—The Martha, from Carthagena, with copper ore and zinc ore, to order. Aux Revoirs, from Alcante, with 180 tons of Esparto grass for G. E. Bird and Co., and 100 tons of zinc ore for Dillwyn and Co. Mary, from Carloforte, with 170 tons of calamine for Richards, Power, and Co. Concepcion Maria, from Aviello, with 154 tons of copper ore, and 32 tons of lead ore, for Richardson and Co. Lena, from Carloforte, with 283 tons of calamine for Richardson Brothers. Demosthenes, from Car forte, with 365 tons of zinc ore for H. Bath and Son. Maria and Alme, from Santander, with 140 tons of iron ore for Richards, Power, and Co. Samuel, from Carloforte, with 290 tons of zinc ore to order. Beaubien, from Santander, with 131 tons of iron ore for Richards, Power, and Co. Lizzie, from Breval, with mining timber for Elford, Williams, and Co. Delphi, from Carloforte, with 393 tons of calamine zinc ore to order. Edith May, from Carloforte, with 350 tons of zinc ore for H. Bath and Son. Rosetta, from Coquimbo, with 630 tons of copper regulus, for H. Bath and Son. Havre, from Havre, with 30 tons of copper ore for H. Bath and Son. Blanche, from Carthagena, with 200 tons of zinc ore for Mr. Homfray.

THE TIN-PLATE TRADE.—The quarterly meeting of the members of the Tin-Plate Trade was held at the Bell Hotel, Gloucester, Mr. Woodruffe, of the Machen Works, Monmouthshire, in the chair. There was a tolerably good attendance of both manufacturers and buyers, among the latter being Messrs. Nash, of Liverpool; Von Dadelz and North, London; and Handley, Birmingham. The Chairman expressed an opinion that tin would be higher in price, and there would, probably, be an advance in pigs as well. Since the last meeting quotations for plates have not kept up as anticipated, not because the demand has decreased, but owing to the increase in the make. American requirements keep about the same, and from the other foreign markets there is an average enquiry. It was stated that the resolution agreed to at the last meeting to reduce the production had not been fully observed by the trade generally, and this, together with the opening of so many new establishments, kept prices down. No change was made in quotations, consequently they remain the same as during the last quarter. The provisions of the new Factory Act were referred to, and it was stated that the men complained more than the employers of the objectional character of many of the regulations. The members, as usual, dined together after the meeting.

FEARFUL COLLIERY EXPLOSION—TEN LIVES LOST.—On Wednesday a fearful accident occurred at the New British Iron Company's Green Pit, near Ruabon, by which 10 poor fellows lost their lives, and 15 others were severely injured. The floor in the vicinity of the mouth of the shaft was torn up, and fully testified to the great force of the explosion. The No. 1 shaft was blocked up for some time. Mr. Ralph Darlington, underground manager, and Mr. Robert Taylor, underlooker of No. 2 pit, were the first who descended the No. 2 shaft after the explosion. Dr. Burton, with Mr. T. Lloyd Evans, arrived at the scene of the accident in 20 minutes after it occurred, and shortly afterwards Dr. Burton, with Mr. Evans, the manager of the New British Iron Company, and Mr. Popplewell, engineer, descended the pit, for the purpose of ascertaining the number of dead and wounded, and to make the necessary arrangements. There was great difficulty in finding all who were killed, owing to the rubbish beneath which some of them were buried. The excitement in the pit was so great after the accident that the men from all points rushed to the pit's eye, and were the first to be drawn to the bank. As soon as the accident became known the scene of excitement throughout the neighbourhood was intense. Six of the dead bodies, and all the injured men and boys, were wound up the No. 2 pit, and those who were killed were placed in the lamp-room, and were soon identified. They were shortly afterwards taken to their houses in conveyances. The remaining four dead bodies were drawn up the No. 1 pit and placed in carts in readiness. Some of the injured seemed in a very lifeless state, and the scene was one of the most exciting character, and in a few instances it required much time to restore them.

REPORT FROM NORTHUMBERLAND AND DURHAM.

OCT. 1.—The Coal and Iron Trades do not improve, as was expected a short time ago; true, many branches of trade here have certainly improved very considerably; this can be confidently said respecting the shipbuilding trade and some others,—some branches of the coal trade are improving also, that is for house and gas coal, but the trade for steam and manufacturing coal is still much depressed, with little appearance, at present, of a better tendency.

The Quarterly Meeting of Ironmasters was held in Newcastle, on Tuesday, when various subjects of great interest, in connection with the trade, were discussed. Many articles of interest were also shown in the Assembly-rooms, although, owing to the want of time, the exhibition was not so extensive as might have been expected. The following are the most prominent objects of interest:

Samples of Steel were shown by Messrs. Fox, Head, and Co., from Ingots (Siemen and Martin) cast by Messrs. B. Samuelson and Co., and the wonderful pliability of the metal, two-thirds made of Cleveland Iron, created considerable astonishment. It was worked in three different processes, known as the A, B, and C, and the average strains of each were satisfactory in the extreme. In process "A" the strain was, with the grain 58·6 tons per square inch, across the grain 52 tons; "B," with the grain 50·6 tons, across the grain 48 tons; "C," with the grain 56·3 tons, across the grain 56·2 tons. During experiments with the three processes, it was shown that the steel, while cold, would bend double without the slightest flaw, and this either with or across the grain. The heated metal would also bend across the grain, and then, after being doubled, would bend back with the grain; while the plates were afterwards punched, in order to test if the fabric had been in any way injured by heating, and were then found thoroughly sound and pliable. These results were of the most astonishing description, as steel has long been considered the most obstinate metal with which to deal; but when we add that it can now be welded, and the cold metal clinched and niched after being bent in a heated condition, the great importance of the invention may more easily be apparent.

Equally satisfactory results were seen from the samples of boiler-plates, nuts, rivets, and engine-use iron, manufactured by Messrs. Hawks, Cravshay, and Son, Gateshead Iron Works; Sir William Armstrong and Co.'s Ridsdale pigs, known as Iron, fully showed its extraordinary pliability, while thick bars were also bent quite close without showing any signs of cracks or breakage.

Mr. William Jackson, of the Bank-buildings, Newcastle, exhibited several improved kinds of Norris and Co.'s machine bands, laces, and ropes, made from Helveta leather, and which were said to be much lighter, stronger, and more durable than any other kind; Deur's patent wood packing, for glands of steam and hydraulic machinery; and Mr. Straker's pressed and hollow brick, for building purposes, were also exhibited on the same stall, and did not fail to receive fitting inspection. Steam-engine and pump packing was also shown from Mr. J. M. Riplington's, Mechanics' buildings, Newcastle, the greatest recommendation of which was that it required no oil, or grease of any kind, no matter how long it might be used, is clean and durable, and is said to save loss of time and waste of material. It is already used with much advantage in many places in the neighbourhood. Allian's patent improved smoke-preventing fuel economising furnaces were also shown by the same firm. Fox, Head, and Co.'s non-conducting cement, for preventing the radiation or transmission of heat, as well as Jones' patent pipe and boiler covering for a similar purpose, were fully explained, while an improved vertical boiler from the same firm is worthy, if time and space permit, of more than a passing notice. The invention is the production of a foreman boiler-maker, and is the result of 30 years' experience in the workshops of several noted boiler-makers. It is constructed to contain a much larger amount of heating surface in proportion to its cost than any known form of boiler suitable for the same purposes, and about one-third more than that of the ordinary form of stack-boiler with cross tubes, while the heating surface is arranged in such positions as most readily to get rid of steam immediately on its formation, and thus by a free and active circulation of water avoiding all danger of damage to the plate from the spherical action of the globes of steam. Every fitting seems to be carefully managed and applied, and the whole thing made as complete as mechanical ingenuity can devise.

The chair was occupied by Mr. Williams, and a paper was read by Mr. John Jones, "On the Position of the Iron Trade in Relation to Technical Education." Mr. Jones said that during the last two years a great deal has been said and written about the position and prospects of the British iron and associate industries. It is generally admitted that the manufacturers of this country must bestir themselves if they are to compete successfully with their continental rivals, prohibitory tariffs, and the comparatively educated masters and workmen available in other countries. In face of the striking facts which at this time threaten the position of the British iron trade, local prejudice and traditional jealousies ought to be set aside, and those connected with the iron trade ought to meet on higher ground, where it might be practical to discuss calmly the common interest of this great industry. Mr. Jones, at the conclusion of his paper, proposed the formation of a society of ironworkers, and others closely connected with the trade, the members to meet at stated intervals, papers to be read, models to be shown, &c., and this project was approved of, and a committee consisting of the following gentlemen was formed to carry the idea out to a practical issue:—Messrs. Edward Williams, Middlesborough; Isaac L. Bell, Newcastle; David Dale, Darlington; J. Morrison, Newcastle; J. J. Smith, Barrow; W. Fletcher, Workington; — Pattison, Harrington; J. Lancaster, Wigan; G. J. Barker, Wolverhampton; W. Williams, Tipton; William Mathew, Dudley; W. S. Roder, Stoke; R. Heath, Stoke; W. Mansans, Dowlais; A. Brogden, Tondu; R. Fothergill, Merthyr; F. Kitson, Leeds; J. G. N. Alleyne, Butterley; Sir Jno. Brown, Stenfield; J. Nellson, Glasgow; B. Samuelson, Bawbury; Jno. Jones, Middlesborough. Mr. Jones was requested to convene a meeting of the provisional committee at Birmingham, on Oct. 8, for the purpose of drawing up rules and making arrangements for the opening meeting of the Institute.

There can be no doubt that the proposed Institute if it succeeds will prove of the greatest benefit to the trade generally, as all similar institution have been the means of rapidly extending the knowledge of new inventions and appliances, and thus saving time and labour to an incalculable extent. The object of thi-

society would be to draw into one focus everything relating to the imperial, as distinguished from the local interests of the trade. It must also be recollect that the tendency of these institutions is to encourage, and even originate, new inventions, so that the benefit derived from them is not easily to be estimated.

The Chairman stated that, in his opinion, the time had not arrived for pushing forward the great movement for imparting technical education, but that rather the imparting of elementary education should be aimed at, as the great bulk of the working classes are yet destitute of the rudiments of knowledge. This, however, appears to be a misconception, as anyone intimately acquainted with the miners and mechanics in the North knows that there is a very large class of men who are quite ripe for technical education, and there is a great want of this, which is most seriously felt. At the same time, if the means for imparting this kind of education is provided (that is, technical education) this circumstance need not retard the movement for general elementary education, which is also most urgently required.

Mr. J. L. Bell then submitted a most elaborate paper, "On the Foreign Relation of the Iron Trade." The conclusion arrived at by Mr. Bell is that the iron trade of this country is in a position to compete with that of any other country. On the whole, although labour is cheaper in foreign countries, iron is produced cheaper here; this is owing to the cheapness of coal, and superior machinery and appliances. Some idea may be formed of the value of Mr. Bell's paper, from the fact that he collected the materials for it at the works of France, Belgium, &c.; it is only, therefore, an account of his own personal observations and experience. It is quite obvious, from the facts he adduces that, owing to the position of the coal and iron ore fields of the Continent, as compared with those of England, that if the principles of free trade were generally recognised the latter country would have little difficulty in competing with the former in the markets of the world. The quantity of coal raised in Great Britain is vastly larger than that raised in France, indeed the latter country imports just about the quantity of coal that is consumed by the iron furnaces, a most important consideration. The situation of the coal and ore fields in France causes very considerable expense in the transit of the raw material to the smelting-furnaces. The quantity of work done by any given number of men in England, so that the rate, or at any rate the cost, of wages is rather less in England than in France. On a full consideration of the whole subject, Mr. Bell comes to the conclusion that iron can be produced in this country at a lower rate than on the Continent.

With respect to the education of the men, he does not think that the workmen of any class abroad have obtained any scientific education of a superior kind to that received by the men here; at the same time, he appears to conclude that the superior officers abroad have, as a rule, received a superior education to the same class of men here.

After the dinner, which took place at the close of the meeting, was concluded, Mr. Bell expressed himself hopefully as to the future of the iron trade, giving his opinion that the giant was only sleeping, or taking a rest, and all should be on the alert, to be ready to execute the orders which would be scattered forth in profusion when he is again aroused. Mr. Williams dwelt particularly on the necessity for general elementary education being given to the rising generation.

Mr. Morison made a most extraordinary speech, commencing by noting the working men of the Tyne such as Stephenson, Armstrong, &c., who by the exercise of great genius and energy, and in spite of the position in which they were placed, having little elementary education, and no technical knowledge at the commencement of their career, yet raised themselves to the highest pinnacle of fame as inventors. He proceeded to sneer at the idea of an educated working man, or philosopher as he called him, at the present time. His short speech is full of contradictions and fallacies, and it certainly found little favour. Education, as a rule, improves all classes of men, but a slight smattering of learning does, in some cases, produce harm, as sufficient learning has not been imparted. However, allowing for drawbacks, elementary education is becoming more general every day, and the friends of compulsory education are increasing in number daily. The formation of classes for technical or scientific education are not progressing so well as might be expected in this locality, still some are being formed, and, as the subject becomes better understood, we have no doubt that the system so well explained lately by Mr. Buckmaster will be brought largely into practice.

NORTH OF ENGLAND INSTITUTE OF MINING ENGINEERS.—A general meeting of members will be held on Saturday, when several new members are to be elected, and the Technical Education Committee will present their report. Mr. W. Boyd will read a paper "On Riveting, with a description of a New Portable Riveting Machine;" and Mr. T. F. Spencer will read a paper entitled "Remarks on the Torsional Strain on Shafting."

REPORT FROM DERBYSHIRE AND YORKSHIRE.

OCT. 1.—There is very little alteration to be noted with regard to the Coal and Iron Trades of Derbyshire, both of which remain in about the same state as when last noticed. The foundries appear to be kept moderately well going, there being a few orders for some descriptions of castings, whilst the demand for rails and plates at the principal establishments is by no means active. The number of furnaces in blast is about the same as it has been for some months past, and although the quantity of pig turned out has not been equal to what could be produced if necessary, it appears that makers have been depending more than formerly on their own ore, although it is generally supposed that a mixture of foreign stone with the native produces a better quality of iron. The steel works are kept fairly working, but there has been no great improvement with regard to them of late. The Coal Trade is now looking much better, and a larger tonnage is now being forwarded to London and the South, especially from Clay Cross, Eckington, Pinxton, and other places. From Staveley, and from the Messrs. Wells, a fair business is being done with Grimbsy for exportation, but which it is not expected will last much longer, as a good many vessels will ere long cease running to the North of Europe. House and gas coal is being sent in considerable quantities to Birmingham and other large towns on the Midland Railway; the Derbyshire owners, having a good deal of the trade to those places in their own hands, have nothing to fear from their Northern rivals, who are too far removed from them to be in the slightest degree dangerous. From Church Gresley and the neighbourhood business is better than it has been, and a larger quantity of coal is being forwarded to the West of England, a small tonnage going in that direction nearly as far as Gloucester, near to which there are several collieries. The land sale is also improving, and will continue to do so as the season advances. For coke there is a fair demand, so that the consumption keeps pace with the quantity made. Sinking operations continue to be pushed forward in most parts of the district, more especially to the North, going towards Sheffield, where a good deal of mineral property has been opened out, and new colliery districts will in the course of a year or two be found within five or six miles of the former town, provided as the neighbourhood will be with good railway accommodation and markets for their produce.

The Sheffield Iron and Steel Trades are without alteration, some of the heavier branches doing tolerably well, whilst the lighter ones are only moderately supplied with orders. Bessemer steel, however, continues in good request, whilst there is considerable activity in connection with some of the establishments engaged in the production of railway material. The town is kept in a high state of agitation just now by the candidates seeking the honour of representing the miners in Parliament, and a good deal of angry warfare is carried on by the local papers. One of the candidates, Mr. Mundella, appears to be a man of peace, and considers that a very large saving might be effected in the national expenditure by limiting the supply of iron material. To this his opponents reply that his love of peace would lead him to do away with such establishments as the Messrs. Brown (Limited) and Cammel and Co., where the vast iron plates are made, and in the production of which, for the necessary defence of the country, many hundreds of men are employed. Mr. Mundella has rendered himself a terror to evil-doers by his exposure of the proceedings of many of the trades by a member of a committee of the Trades Committee.

In South Yorkshire the Iron Trade continues in a very healthy state, at nearly all the works there being a good demand for most qualities of manufactured iron, including rails, sheets, and plates. The same also may be said with regard to Bessemer steel, for which there are some very considerable orders in hand. Coal masters are just now much busier than they have been for a considerable time past, and there is much more doing with London, notwithstanding the fact that as yet there has been no alteration in the traffic rate by the Great Northern. Silkstone house coal and nuts are in steady request for the South as well as the home districts. During the week there has been an increase in the tonnage going to Hull, as the merchants are pushing the loading of their vessels, in the hope that they may be able to make another voyage on their return from the Baltic before the ice sets in for the season. To Grimsby, also, there is rather more doing in steamuals, both for the North of Europe and for the home ports. Coke is without alteration, there being a demand for all that is made, a large proportion finding its way to Lincolnshire and Derbyshire. Another serious colliery explosion has occurred through the incantous use of an unprotected light. At the Swan Lane Colliery, near Wigan, the manager, underlooker, and a fireman went to a new cutting for the purpose of "measuring up," and as soon as the foremost of the party entered the level the gas fired, at the naked candle which he was carrying. The three men were all severely injured. Proceedings will be taken against the fireman, whose duty it was to have inspected the workings that morning.

The blast-furnaces of the Wingerworth Iron Company, Chesterfield, which have continuously been kept going for 22 years, are now blown out, and the works undergoing repairs, consequently upon the renewal of the company's lease. It will probably require three months to complete the alterations necessary to placing them upon the most approved modern basis.

SOUTH YORKSHIRE COAL OWNERS' ASSOCIATION.—The quarterly meeting of this association was held on Tuesday at the King's Head Hotel, Barnsley, where there was a very good attendance of the members. The principal matter discussed was that relating to the memorial presented to the directors of the Great Northern Railway some five months ago, asking for a reduction of the present rate to London. It was stated that owing to the charge for conveying coal from the South Yorkshire district to the metropolis being so high the coalowners were unable to compete with those in the Northern and Derbyshire coal fields. Much surprise was also expressed that the memorial had not experienced that consideration at the hands of the directors which it was entitled to, seeing that Yorkshire sends considerably more coal by the Great Northern than all the other districts put together. It was resolved that the attention of the company should be again directed to the subject of the memorial. It was also agreed that the Manchester, Sheffield, and Lincolnshire Company

should be communicated with on the subject of their rate to Doncaster. The present rate from the Barnsley district, average fourteen miles to Doncaster, is 5d., which is very high for the distance. A deputation from the governors of the Barnsley Dispensary, asking for aid towards the endowment of an infirmary about to be added to the present building, was received, and it was agreed that the coalowners should subscribe in their individual capacity. Several of the gentlemen present put their names down for various sums. The proceeding terminated with a vote of thanks to the Chairman.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

OCT. 1.—The week between the Preliminary Meeting of Ironmasters and the Quarterly Meetings is always a dull one. There is no reason to say there is any change in the demand for iron, but, perhaps, rather fewer orders have been received this week. It is a singular fact that the exports of iron in August last were so much below the corresponding month in last year. Taking quantities, we find that in August last year we exported 183,047 tons, or 19,264 less than in 1867, and the decline applies to every sort of iron except "castings" and "wrought of all sorts," meaning other sorts than those important enough to be distinctly specified. For the whole eight months of the year there is a very slight decline. Probably the export for August was affected by exceptional influences. The attempts of the men in North and South Staffordshire to obtain an advance of wages appear to have been abandoned for the present. It must be evident that this is not the time to make it.

A terrible boiler explosion occurred on Monday night about seven o'clock at the Moxley Steel and Iron Works, of Mr. Thomas Wells, which are between Bilston and Darlaston, and the result is that 11 men and boys are already dead, and 4 more are given over as sure to succumb under their injuries. The explosion was heard two miles off, and portions of the boiler and the buildings were carried to the tops of houses 100 yards away. The boiler which burst was one of four which supplied the engine of the forge with steam. It was worked by the heat from four puddling-furnaces, and the furnaces were grouped around it, so that the puddlers who were at work were in the very centre of the fearful force which rent it to pieces. The boiler was upright, with egg-shaped ends, 22 ft. high and 10 ft. in diameter, and had been in use for 14 years. It was repaired only a month before the accident, and the whole of the bottom was removed two years and a half ago. Mr. Charles Wells, son of the proprietor, in stating these facts at the inquest, added that each of the boilers had two safety-valves, one 5 in. and the other 6 in. in diameter, and there was also a 6-in. main safety-valve applied to the whole of the boilers, which were connected, and which kept them at a pressure of 34 lbs. to the square inch. He said it was clear that the boiler was not short of water, as the scut still remained on the plates. Mr. Wells, the proprietor of the works, who is a thoroughly practical man, said the boiler was made of Shropshire plates, and was constructed on the best possible principles, and he was quite at a loss to account for the explosion. The boiler was not insured, nor under the inspection of any society. It is, however, due to Mr. Wells to say that the works have been carried on for 23 years with a singular exemption from accidents, only one man having lost his life there, which was in last January, through getting his arm caught in the shears. An enquiry has been opened by two coroners, and one closed, so as to leave to the other the task of unravelling, if possible, the cause of this terrible accident. Mr. E. J. Wright, who is an extensive maker of boilers, and Mr. E. B. Marten, chief engineer of the Midland Steam-Boiler Association, have examined the remains of the boiler, with a view, if possible, to come to a conclusion as to the cause of its bursting. Mr. Wells has afforded relief to the bereaved families, and the means of burying the dead.

Presided over by Lord Lyttelton, for the purpose of promoting the education of youths, who have gone to work, in evening schools. The annual meeting was held on Monday, at Bilston, and among the topics discussed naturally was the effects of the Factory Acts and the Workshops Regulation Act in promoting education in the district. The universal opinion was that the result was most disappointing to those who expected any benefit from those measures. It is an old tale, told in this letter long before the Acts were passed, and is just this, that the Workshops Regulation Act is a dead letter, because there is no one to carry it out, and the Factory Acts, which only apply to the larger works, cause many children to leave the best regulated manufactures, where their labour is restricted, and resort to the wretched garrets and narrow, low shops, in which many men work with a few lads, and, perhaps, girls. The only defence for the legislation of last session conceivable is, that the larger manufacturers were to be coerced, so as to induce them, as members of local governing bodies, to put the Workshops Regulation Act into operation, and so serve their smaller competitors the same as they were served. As yet this has not followed, and any attempt by a local governing body to enforce the Workshops Regulation Act would almost certainly lead to their non-enactment when next they had to appeal to the ratemakers.

NORTH STAFFORDSHIRE COAL AND IRONMASTERS' ASSOCIATION.—The quarterly meeting of this association was held at Stoke-upon-Trent, on Thursday. There was a good attendance. Orders were reported to be less numerous for finished iron than was the case a few weeks ago, and there was a unanimous opinion that

having a 44-in. cylinder, and worked by six boilers. The winding is done by a three-decked cage, carrying six tubs in each pit, and containing 42 cwt. of coal each time. These pits are in the extreme deep of that portion of the Lancashire coal field, and so great was the influx of water on sinking them that 140 yards of metal tubing had to be put in each pit, which are now, however, comparatively dry. The coal dips at an angle of 1 in 3 for 600 yards, so that the coal is being worked in the deep at 720 yards from the surface, and the natural heat of the mine at so great a depth is about 70° : 100,000 cubic feet of air are passed through the mine per minute. The coal being worked in the deep, is brought up to the pit bottom by engine-planes, 600 yards long, at one in three, and worked by one pair of horizontal high-pressure engines, with 24-in. cylinders; and by a second pair of horizontal, high-pressure engines, having 26-in. cylinders, which are worked by three boilers underground. This pit has also been visited by the British Association, and by the North of England Institute of Mining Engineers. A considerable tract of coal has been worked from under the town of Pendleton. By these pits, but in order to prevent damage to the surface buildings only one-third of each seam has been taken out, the remaining two-thirds being left in for support.

After making an inspection of the extensive surface arrangements, the whole party descended the pit 620 yards deep, and made an inspection of the very powerful underground hauling-engines. These two pairs of horizontal engines are of the most beautiful and complete order, and are used for hauling the coals a distance of 600 yards out of the deep up to the pit bottom, there to be raised to the surface by the winding-engine.

The party then descended the engine-plane in batches of 16 at a time, and arrived at the foot of the engine plane, a distance of 600 yards, and a total depth from the surface of 720 yards under the suburbs of Pendleton. Notwithstanding the immense quantity of fresh air being constantly sent through the mine it became very oppressive at this great depth. After inspecting the getting of the coal at this point the party were drawn up the incline at the rate of about 14 miles an hour to the pit bottom. The time occupied in raising them to bank, the 520 yards, was about 1 minute and 20 seconds.

The party were under the guidance of Mr. Andrew Knowles, jun., and Mr. S. Horrocks, the viewer. After partaking of some refreshment a unanimous vote of thanks to the enterprising firm was passed for their kindness in placing the whole colliery at the service of the Association.

The next excursion of this very useful society will be to inspect the new patent Gubal's ventilating fan, recently erected by the Messrs. Swindell, at their Homer Hill Colliery, near Cradley. As this is the first application of mechanical ventilation in South Staffordshire, we shall report the particulars, and we have no doubt they will be read with considerable interest. We understand that at the test trial, made a few days ago, with a small 12-horse engine it produced 57,000 cubic feet of air per minute through the mine. The quantity of air is entirely under control and can be increased or decreased at will. Much praise is due to the Messrs. Swindell for adopting the best means at command for preventing the recurrence of so sad a calamity as took place at this colliery some time ago, and we wish it all the success it deserves.]

[ADVERTISEMENTS.]

From Mr. EDWARD COOKE.—The Market is gradually improving, and a good enquiry has existed throughout the week for shares in several mines, including West Gilverton, Trumpet Consols, Great Wheal Vor, Frank Mills, Prince of Wales, East Grenville, Great Laxey, West Drake Walls, Chiverton Moor, Chiverton, &c. The Banca sale of tin went off exceedingly well, the whole of the large quantity having been sold at an advanced price. The opinion of those qualified to speak on the tin trade is very much in favour of a steady and further considerable rise in the price of this metal. Tin mines will, therefore, become in demand, and shares in some of the best of them are worth looking after. Among the very best of them are Trumpet Consols, Great Wheal Vor, Tincroft, and East Lovell. At the meeting of NEW WHEAL LOVELL the costs were brought up close, and a call of 25. ed. per share made. This places the company in an excellent financial position, and as to the mine itself there is not a mine that I know of in Devon and Cornwall with such prospects as New Wheal Lovell, selling at such a ridiculous price. There is not, in my opinion, the least chance of any loss by purchasing at present price, but every prospect of making large profits. I made similar remarks about FRANK MILLS shares in the Journal of Sept. 12, since which they have advanced 20s. per share, or 100 per cent., and likely to go very much higher : 150 tons of lead from this mine will be sampled this week. The last parcel, of 100 tons, was sold about a month since, and realised 27. 15s. per ton more than the previous sale. The mine is, therefore, steadily progressing towards a dividend state again.

PRINCE OF WALES MINE is improving almost daily in the 65, or bottom level, and showing evident signs of becoming a very great and lasting copper mine in depth. The 65 fathom level east is now valued at upwards of 200. per fathom. As I stated last week, this is approaching WEST DRAKE WALLS MINE, the shares in which are now at a very low price, but they should not be neglected. The lode in CHIVERTON MINE, recently discovered, promises to be more important than at first supposed. The shareholders should hesitate ere they part with their shares. A large business has been done in them. Seeing that the discovery is entirely a new lode, another rich mine may be opened up in this district.

WEST GREAT WORK shares have been offered at lower prices. As far as the mine is concerned there is nothing to justify any decline in price. These shares, and also SOUTH GREAT WORK shares, are exceedingly cheap. Both of these mines are situated in the centre of the richest mining district that has yet been opened up in Cornwall, and they contain most excellent prospects of success. CHIVERTON VALLEY MINE is now approaching the depth that will intersect the lead ground dipping into this lode from Chiverton Moor. There appears to be no speculation about it, and while there are excellent chances for Chiverton Moor in the eastern part of the sett, towards West Chiverton, there appears to be no doubt about a productive lead mine being up in a very short time in Chiverton Valley. CALDBECK FELLS shares have been in good demand. The mine appears to be progressing exceedingly well.

From Mr. JAMES HUME.—A revival of business is apparent throughout the entire stock and share markets. Railway ordinary stocks generally have advanced, confidence being restored by increasing traffic. The Mining Share Market has shown a marked change during the past week, a stimulus being imparted to it by two or three improvements, but especially by the sale of Banca in Old Chiverton had the effect of causing shares to advance to 3. 3d., but on conflicting rumours as to its value they fell to 3s., and then advanced to 2. 2d. More of the lode requires to be seen in order fairly to estimate its value, but it is described as of a kindly character. The adjoining mine eastward is EAST CHIVERTON, the progress of which is watched with interest, and the shares well held. Westward the adjoining mine is WEST CHIVERTON. WHEAL UNY is reported as looking exceedingly well, with a bottom level worth 600. per fathom for tin. Even at the low price of tin the profits are 200. to 300. per quarter. What will the dividends be with 10% higher? MARKE VALLEY is a substantial dividend mine, and a good investment.

In the Calstock district PRINCE OF WALES occupies the principal attention among dealers and speculators at present. Owing to the bottom level turning out poor for 25 fms., shares fell to 3s.; the last few fathoms driving have, however, improved considerably, raising the price to 40s., 42s. ed., and it is hoped for the sake of those who were induced to buy at 3s. 10s., that the improved state of the mine will continue, which would have a good effect on the district generally. In the same district eastward a leading rising mine, called WHEAL MARY FLORENCE (Limited) is rapidly approaching success. By the end of this month they will be in a position to drive into and on a lode worth 3 tons of rich copper ore per fathom, and as this is the commencement of the ore ground which extends for about 60 fathoms ahead, it is estimated that the mine can immediately be made profitable; there is an equal extent of orey lode westward. During the last two or three months attention has wholly been directed to securing ventilation; this done, the works can go on with comfort. The mine is expected to be quite equal in productiveness to any mine ever opened in the district. At the present price of shares the entire market value is about 6000. only. The market price of PRINCE OF WALES is 26,000., and from this to 30,000. or 40,000., is a very common figure for mines to attain when proved successful. It will thus be seen that there is no room for loss, and the margin for a rise is all in favour of buyers.

The time is, no doubt, near at hand when all low-priced mines having any merit or chance of discoveries will become in demand, and shares now selling for a few shillings may any day command ten times the amount. A call of 5s. at SOUTH CONDUBROW is at first sight disheartening, but there is a fine course of tin not yet operated upon which will give large profits for the future, and there are still the chances for copper; and it is a favourite share when improvements occur.

From Mr. EDWARD BREWIS.—The market for mining securities during the past few weeks has been steady, considering the holiday season; and now October has set in, the usual busy month will cause an advance in many mines, quite as great as that which characterised Chiverton two weeks ago. This is certainly the time when an interest may be bought for a rise in price on the mines' own merits, such as West Godolphin, West St. Ives, Royalton, and Lovell Consols, with a few others for tin, and East Carisbrooke, North Treskerby, and particularly WHEAL SETON for copper, which latter for a good investment is by far the cheapest share in the market at the present moment. There are only 336 shares in the mine, and investors should be guided by this fact—the fewness of shares floating about. The price, 47½ to 52½, or (say) 50s. per share, is a remarkable quotation, especially for a mine that has divided 254. 15s. per share in a few years, or more than five times their selling price. I would not be the slightest surprised at some reasonable time to find these shares 200. or 300. each; this must necessarily soon be as great a mine as ever, and the turning point is near at hand, which the purser briefly observes. Do not, then, lose the present chance of securing an interest; it will never occur again within this century. LOVELL CONSOLS continues its improvement, and as a small-price share this is worth noting, the district being a good tin part of Cornwall—Wendron. NORTH TRESKERBY, as a copper mine, possesses marked realities of becoming again a dividend mine when the present operations, recently begun, have opened up the resources of the sett. These shares are to be obtained for a few shillings, and might be profitably locked up, as they were 2s. each not long ago, and will be so again. Present or prospective capitalists should make a note of this. In gold mines, some attention is now being directed to LUCY PHILLIPS. Dr. Bishop, who is on the spot, believes the mine will turn out well yet, and the high assay of the gold and silver ores from the Atlanta ledge will be amply borne out. The machinery is there, and if not already erected, completed for crushing, will speedily be so.

THE ROPE TRADE.—Messrs. Garnock, Bibby and Co., of Liverpool, write—Since our last circular (Aug. 1) business has been generally very dull; the only animation in the hemp trade has been caused by a fire at St. Petersburg (which destroyed about 700 tons of hemp and 1500 tons of flax), and the large demand for Manila hemp required for the new Atlantic cable; these circumstances have made a firm market for both descriptions of rope.—Manilla and Tarred Hemp Rope: We have no change to advise in prices this month.—Wire Rope: We call attention to an important reduction in the price of this rope.—Coir Rope: Yarn is more plentiful; the price is high, and likely to continue so.

The Austrian Minister of Finance having resolved to sell the State mines and works situated at Kleinboden and Prinzen, in the Tyrol, and also the State coal mines at Weitwawon, in Bohemia, which is distant about ten English miles from the station of Brünn, on the Bohemian Western Railway, tenders are invited to be sent in until Oct. 20 next.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the GREAT WHEAL BUSY MINING COMPANY.—The Registrar of this Court has appointed FRIDAY, the 16th day of October next, at Eleven o'clock in the forenoon, at the Registrar's Office, at Truro, to SETTLE THE LIST OF CONTRIBUTORIES of the ABOVE-NAMED COMPANY, now made out and deposited at the said office.

WILLIAM MICHELL, Registrar of the said Court.

Dated the 25th day of September, 1868.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the ST. DAY UNITED MINING COMPANY.—By the direction of His Honor, the Vice-Warden, notice is hereby given that, on the 13th day of October next, at Eleven o'clock in the forenoon, at the Registrar's Office, at Truro, to PROCEED TO MAKE A CALL OF ONE POUND THREE SHILLINGS AND FOUR PENCE PER SHARE on all the contributors of the said company settled in Class A. All persons interested therein are entitled to attend at the time and place to offer objections to such call.

WILLIAM MICHELL, Registrar.

Dated Registrar's Office, Truro, 24th September, 1868.

In Chancery.

MONMOUTHSHIRE.

HOLYBUSH COLLIERY AND COKE WORKS.

MESSRS. FULLER, HORSEY, SON, AND CO. are instructed by the Official Liquidator, with the approbation of the Master of the Rolls, to SELL, BY AUCTION, on Friday, October 9, at Two o'clock precisely, at the Westgate Hotel, Newport, Monmouthshire, in One Lot, the valuable LEASEHOLD MINERAL PROPERTY, known as the HOLYBUSH COLLIERY AND COKE WORKS, with the fixed and loose PLANT, MACHINERY, ROLLING STOCK, LOOSE TOOLS, and STORES, situate in the parish of BEDWELTY, in the county of MONMOUTH, about 17 miles from the shipping port of Newport, and in direct communication therewith by the Sironway Railway, which has a siding to the pit's mouth and coke ovens.

The total area of the mineral property is about SEVENTY-NINE ACRES, containing a seam of coal called the Pontygwaith and Marshall's Vein, about 2 ft. 8 in. in thickness, well adapted for household and coking purposes. The colliery is held at rents and royalties.

May be viewed previous to the sale, and full particulars obtained from F. WHINNEY, Esq., Official Liquidator, 8, Old Jewry, E.C.; TURNELL SOUTHAGE, Esq., Solicitor, 7, King's Bench-walk, Temple, E.C.; at the Westgate and King's Head Hotels, Newport; and of Messrs. FULLER, HORSEY, SON, and CO.

Companies Act, 1862.

RE GRONANT MINE COMPANY (LIMITED).

GRONANT SILVER-LEAD MINE.

Situate in the parish of LLANASA, in the county of FLINT, two miles from the Prestatyn Station on the Chester and Holyhead Railway.

MRS. BELL has received instructions to OFFER FOR SALE, BY PUBLIC AUCTION, at the company's office in Gronant, in the parish of Llanasa, county of Flint, on Thursday, the 16th day of October, 1868, at Three o'clock in the afternoon.

The company's interest in the several LEASES, AGREEMENTS, and TACK NOTES of the MINERALS under the lands in the parish of LLANASA, therein specified, together with the ENGINES, MACHINERY, ROPES, TACKLE, LADERS, MATERIALS, &c., now on or belonging to the Mine.

The minerals are held under leases granted from Sir PYERS MOSTYN, Bart., the Rev. J. B. H. BROWN, and BALDWIN LLOYD, Esq., at moderate royalties, and extend from east to west about a mile and a quarter, and nearly the same length from north to south.

The MACHINERY comprises a 60 in. high-pressure expansive condensing ENGINE, with TWO BOILERS and PITWORK of the most approved character; THREE other excellent ENGINES, with BOILERS, one for pumping, the others for winding; CRUSHING MILLS, WHIMS, LADDERS, DRESSING FLOORS, and all other requirements, and all in most complete order.

Catalogues are now in preparation, and will in a few days be ready for delivery.

For further particulars, apply to Mr. JOHN S. BLEASIE, the Official Liquidator, Commerce-chambers, Lord-street, Liverpool; Mr. WILLIAMSON, Solicitor; or Mr. BELL, Auctioneer, Holywell.

In the Matter of the Companies Act, 1862,

AND

THE BWLCH-Y-PLUM LEAD MINING COMPANY (LIMITED).

MRS. DAVID JONES WILL SELL, BY AUCTION, on Friday, the 25th day of October, 1868, at Three o'clock in the afternoon, at the Town Hall, Port Madoc (subject to conditions to be then and there produced), the COMPANY'S INTEREST in all that VALUABLE LEAD MINE, called THE BWLCH-Y-PLUM.

Situate in the parish of LLANFROTHEN, in the county of MERIONETH, NORTH WALES.

Together with the PLANT, consisting of a valuable WATER-WHEEL and GEARING, PUMP, WASHING GEAR, and other effects—all in good working condition.

The property is offered for sale for the residue of a term of 21 years, which commenced on the 25th day of March, 1863, and subject to a dead, or minimum, rent of £100 per annum.

For further particulars, apply to Mr. WILLIAM CASSON, Port Madoc; Mr. WILLIAM CRIPPIN, Seymour House, Old Trafford, Manchester; Mr. HENRY CLARKE, No. 13, Pitt-street, Liverpool; or to Mr. WILLIAM RADCLIFFE, solicitor, No. 12, Sweeting-street, Liverpool.

EAST WHEAL AGAR MINE, PARISH OF ST. CLEER, NEAR LISKEARD,

MRS. CHARLES E. PEARSE (Auctioneer and Valuer, Bodmin) is favoured with instructions to SELL, BY AUCTION, on Tuesday, the 6th of October, 1868, at Twelve o'clock noon, on the mine, the excellent ROTARY STEAM ENGINE, and MATERIALS thereon; also the account-house furniture.

For further particulars, or for catalogues, apply to the agents on the mine; or to the Auctioneer, at Bodmin.

VALUABLE TIN-PLATE WORKS, AND TWO DESIRABLE RESIDENCES, NEAR SWANSEA, GLAMORGANSHIRE.

MESSRS. BARNARD, THOMAS, AND CO. are instructed by the assignees of the estate of Mr. David Davies, a bankrupt, to OFFER FOR SALE, BY AUCTION, at the Mackworth Arms Hotel, Swansea, on Saturday, the 17th October, 1868, at One for Two o'clock in the afternoon, subject to such conditions of sale as shall be then and there produced, all that valuable and extensive property, known as

CWMFE LIN TIN-PLATE WORKS.

Near the town of SWANSEA, and now in thorough repair and full working order.

The WORKS are situate on the Great Western Railway, within half a mile of the Landore Junction, where also the Swansea Canal passes, and consist of—

The FORGE, with STEAM-ENGINES, PUDDLING FURNACES, CHARCOAL and HOLLOW FIRES, SHEARS, and all other MACHINERY requisite for a

make of 70 tons of charcoal and coke bars per week.

THREE BLACK PLATE MILLS, worked by powerful engines and machinery, erected by Mr. Richard Neville, of Llanelli.

ANNEALING HOUSE, with all needful appliances, together with black-plate pickling rooms of ample capacity; the house, well arranged, having eight sets; sorting rooms, and tin-plate warehouse, with large brass loft over; two coking ovens; blacksmiths' and carpenters' shop; tin melting room, with furnace and boiler; bar-iron store; warehouse for palm oil, &c.

Spacious offices, eight-stall stable, with hay-loft and coach-house; partly erected and intended for a sawing machine, two-storey rooms, and dwelling house.

In addition to the foregoing, and rendering these works unusually complete, there are gas works for lighting the entire premises, and a very powerful lathe, with steam-engine attached, for turning rods.

The works at present receive water from the Swansea Water Works, but, at a small outlay, an inexhaustible supply is to be obtained on the premises; there is also a large pond for general use.

The works are modern, substantially built, and well arranged; are equal to a make of 1200 boxes per week, and are capable of extension.

The charcoal and coke brands are well established, and in good repute.

The property, comprising 5 A. 3R. 2P., or thereabouts, affording ample and convenient space for tips and general purposes, is held under two leases for unexpired terms of 57 years and 94 years respectively, at ground rents amounting together to £150 per annum.

This lot will include the fixed plant and machinery. The purchaser will be required to take the tools, implements, stock, and other effects (excepting manufactured stock) at a valuation.

LOFT 2.—All that newly erected detached VILLA RESIDENCE, situate on the FYFNON ESTATE, SWANSEA, known as HILLSIDE HOUSE, commanding a fine view of Swansea Bay and the surrounding country, held for an unexpired term of 94 years, at a ground rent of 2s. per annum.

The house contains on the ground floor a spacious entrance

RAILWAY WAGON WORKS, BARNSLEY.
M E S S R S . G . W . A N D T . C R A I K
 ARE PREPARED TO
 SUPPLY COAL AND COKE WAGONS
 OF EVERY DESCRIPTION,
 Either for cash, or by deferred payments through wagon-leasing companies.
 WAGONS PROMPTLY REPAIRED.

RAILWAY WAGONS TO LET.

O N REDEMPTION LEASE, OR HIRE, SECONDHAND
 BROAD and NARROW GAUGE RAILWAY WAGONS.
 For particulars, apply to the BRISTOL AND SOUTH WALES RAILWAY WAGON
 COMPANY (Limited), Exchange-buildings, Bristol.
 Sept. 30, 1868.

JOHN CURTIS, Secretary.

COAL WAGONS.

R AILWAY WAGONS, capable of CARRYING SIX TONS OF
 COAL, TO BE LET by the MONTH or YEAR, upon favourable terms.
 Address, B Box, Post-Office, Hereford.

LOCOMOTIVE TANK ENGINES FOR MINES AND COLLIERIES.

H E N R Y H U G H E S A N D C O .,
 FALCON WORKS, LOUGHBOROUGH,
 Have ALWAYS IN PROGRESS, and can SUPPLY at short notice,

TANK ENGINES

To suit any gauge of railway and gradients from 1 in 16.

THE BEVERLEY IRON AND WAGON COMPANY (LIMITED),

M ANUFACTURERS OF RAILWAY WAGONS, WHEELS AXLES, LORRIES, CARTS, WOOD WHEELS, &c.,
 IRONWORKS, BEVERLEY, YORKSHIRE.

PIG LEAD.

M ESSRS. WESTON AND COLLINGBORN SOLICIT ORDERS
 for SOFT PIG LEAD, which they are producing of the very best quality.

Prices on application.

WORKS, SWINFORD, GLOUCESTERSHIRE.

OFFICE, -18, PETER STREET, BRISTOL.

I N THE TOWER FOUNDRY IS THE TYNE DEPOT FOR
 MACHINERY of every description for WOOD and IRONSTONE, CORN-CRUSHING, and PUG MILLS. Also, AGRICULTURAL IMPLEMENTS.

PROPRIETOR, -G. HARLE, JUN.,

NO. 49, MAPLE STREET, NEWCASTLE.

PURCHASERS of PORTABLE ENGINES and STEAM CRANES will do well
 to ask G. HARLE's price for the same.

BIRMINGHAM FINANCIAL COMPANY (LIMITED),
 OFFICES, -WATERLOO STREET, BIRMINGHAM.

CAPITAL, -HALF A MILLION.

Reserve fund, 12,000.

ADVANCES made upon approved real and other securities.

DEFERRED PAYMENTS on Wagon Leases and other contracts purchased
 or advances made thereon.

HENRY ALLBUTT, Secretary.

ESTABLISHED 1844.

GREAT BRITAIN MUTUAL LIFE ASSURANCE SOCIETY.

101, CHEAPSIDE, LONDON, E.C.

EMPOWERED by Special ACT of PARLIAMENT, 26th and 26th Vic., cap. 74.
 Terminating annual premiums and sums assured payable during life.

PECULIAR ADVANTAGES OFFERED TO POLICY HOLDERS BY THIS SOCIETY.

The profits applied—first, in extinguishing the premiums AT A GIVEN DATE,
 and afterwards in making the policy PAYABLE DURING LIFE; this important
 advantage being secured without the payment of any additional premium.

ANDREW FRANCIS, Secretary.

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WEST END STOCK, SHARE, AND INVESTMENT AGENCY.
INVESTMENTS in PUBLIC SECURITIES effected on the most advantageous terms.
LOANS GRANTED on marketable stocks and shares.
EXCHANGES OF STOCKS and SHARES NEGOTIATED.
This agency affords West End operators facilities hitherto to be had only in the City.
F. LIMMER, Secretary.
9, Adam-street, Adelphi, London, W.C.
Office hours, Ten till Four.

FOR SALE:—
25 Don Pedro, £2 12s. 6d. 40 Prosper United, 8s. 60 Chontales, £2 7s. 6d.
4 Trelawny, offer wntd. 50 Snaefell, 10s. 6d. 75 Frank Mills, offer wntd.
80 New Lovell, 16s. 30 Fronton, 14s. 6d. 10 East Caradon, £3 6s.
42 East Carn Brae, 5s. 25 Yudanamuta, £2 19s. 5 East Bassett, £9 15s.
25 E. Grenville, £2 18s. 50 W. Gt. Work, £1 11s 6d. 30 New Cliford.
20 East Lovell, £6 10s. 50 Brynpostig, £1 15s. 10 Great Vor, £1 11s 6d.
80 East Rosewarne, 2s 6d. 2 Wheal Seton, £4 15s. 20 West Caradon, £2 5s.
50 W. Drake Walls, 7s 6d. 3 West Chiverton, £6 1. 90 Drake Walls, 6s. 9d.
40 Chiv. Moor, £6 15s. 5 Tincroft, £12 10s. 50 Pr. Wales, £2 1 9
30 Chiverton, £2 5s. 10 Marke Valley, £7 7s 6d. 50 Holcombe Sack Co.
4 Herodstool, £40. 12 Great Laxey, £17 15s. (Lindited), £2 12 6
90 Crebore, 3s. 50 G. No. Downs, £1 17 6s. 80 Condurrow offwntd.
5 Wh. Mary Ann, £17 15s. 100 East Tamar Valley.

TAMAR VALLEY SILVER-LEAD MINE.—These shares are being enquired for, and there is every probability of a good rise. We have lately had the mine inspected, and have the utmost confidence in the success of the undertaking. Our clients desiring an interest should at once communicate with us.

M E S S R S . T H O M A S B O N N E R A N D C O . , MINING AGENTS, MINERAL SURVEYORS, AND SHAREBROKERS, LLOYD STREET, COOPER STREET, MANCHESTER.

Messrs. THOMAS BONNER and Co. having been engaged in mining pursuits and the management of metalliferous mines for upwards of twenty years, their experience enables them to give their clients the soundest advice. They are always in a position to negotiate for the buying and selling of mineral properties in all parts of the world; and they also undertake the floating of companies for working such properties, if the bona fide prospectus, after careful investigation, meets their approval.

T. B. and Co. are also dealers in every kind of mining shares, and having an extensive connection are generally able to deal in shares difficult of sale in the open market, and invite transactions from holders of this kind of stock.

M R . J . N . M A U G H A N , STOCK AND SHAREBROKER (Member of the Stock Exchange), No. 2, COLLINGWOOD STREET, NEWCASTLE-ON-TYNE, Bankers: Messrs. Lampton and Co.

M R . H . D . H O S K O L D , MINING ENGINEER, LAND AND MINERAL SURVEYOR CINDERFORD, NEWNHAM.

EAST PLYNLIMMON LEAD MINING COMPANY (LIMITED).

To be incorporated under the Companies Acts, 1862 and 1867, with Limited Liability.

In 250 shares of £20 each, £5 payable on application, £3 in three months, £5 in six months, and the rest, if required, at intervals of not less than three months, and not more than £2 at a time.

The object of this company is to purchase the lease and to carry on mining operations in the "Blaenau" grant, situated in Montgomeryshire, near the boundary of Cardiganshire, and in the midst of a rich mining district.

This property adjoins the successful Plynlimon Mine, and on the same lodes. The Plynlimon Mine was commenced from surface only about two years ago, when it was purchased for £6000, and a company then formed in 50 shares of £100 each, which are now valued at £300. They have sold about £6500 worth of lead ore, and continue to open out good courses of ore in several levels, already making a profit of about £200 per month, which will soon be considerably increased.

The adit level at Plynlimon Mine has been driven 110 fms. in a lode worth, for the whole of that distance, an average of 1 ton of lead ore per fathom; the present end of the level being worth 3 tons per fathom, and is now within 90 fms. of East Plynlimon boundary.

Two cross-cuts can be driven in the East Plynlimon grant, which would cut this and another lode in about six to eight months, at 30 to 40 fms. deep, where levels can be driven east and west upon the lodes, and thus probably lay open expeditiously and cheaply a valuable mine.

Another important fact is that the Plynlimon lode has been discovered at the eastern boundary of the East Plynlimon grant (on the opposite side from Plynlimon Mine), where it shows good lead ore, and is of an excellent character, and from this point an adit level can be driven westward on the course of the lode, and quickly gain 40 fms. of backs. This discovery is most important, as it proves the Plynlimon lode to be an ore-bearing one for a great length, and at the farthest point yet opened upon in this direction.

About two years ago the Van lead lode was cut at that mine (about nine miles from East Plynlimon), since which they have sold upwards of £20,000 worth of ore, out of which they have returned to the proprietors the whole of the capital laid out with a handsome profit, and are making at the rate of £8000 per annum, with ore ground already discovered estimated to give that rate of profit at least for ten years to come.

In 1863 the West Chiverton Lead Mine was purchased for £30,000, since which they have divided £81,500, their present dividends being £6000 quarterly, or £24,000 per annum, with every prospect of a long continuance, and the market value is £180,000. Again, in 1863 the Great Laxey Lead Mine was purchased for £40,000, since which they have divided £131,250, their present rate of dividends being £7500 quarterly, or £30,000 per annum, and the market value is £265,000.

Fall prospectuses, with the names of the directors, and reports, can be obtained from J. H. MURCHISON, Esq., 8, Austinfriars, London.

WEST ST. IVES CONSOLIDATED TIN MINING COMPANY (LIMITED).

Capital £10,000, in 10,000 shares of £1 each.

Deposit, 5s. per share on application, £5, on allotment, £5, in three months, and £5, in six months after allotment.

Shares may be paid up in full, and 5 per cent. interest will be allowed on calls paid in advance. Share warrants for fully paid-up shares will be issued, payable to bearer, which will pass from hand to hand without transfer. According to the Companies Act, 1867, the names of the holders of such warrant shares need not be registered.

If no allotment be made, the deposit money will be returned in full.

DIRECTORS.

WM. ALDRIDGE, Esq. (Messrs. Aldridge and Maynes, Machinists), Manchester. JACOB HARRISON, Esq., 2, De Grey Terrace, Leeds (Chairman of the Yorkshire Lead Mining Company).

BENJAMIN MORTON, Esq., Manufacturer, Linthwaite, near Huddersfield.

JAMES ROBERTS, Esq., Surgeon, Golcar, near Huddersfield.

THOS. STYRING, Esq., Huddersfield.

JOHN W. WILLIAMS, Esq., Manchester and Southport.

BANKERS.

The ALLIANCE BANK (Limited), LONDON; and KING STREET, MANCHESTER, and its other Branches.

SOLICITORS.

MESSRS. MARSLAND AND ADDLESHAW, 67, King-street, Manchester.

AUDITOR.

MR. J. A. BURNE, Accountant, 57, Princess-street, Manchester.

MANAGING CAPTAIN—CPT. JOHN NANCARROW.

PRESER—J. M. KERNICK, Esq., J.P., St. Ives.

SECRETARY—MR. THOMAS ALDRIDGE.

OFFICES.—28, PALL MALL, MANCHESTER.

MESSRS. HANNAH AND CO., of 449, STRAND, LONDON; and ROYAL INSURANCE BUILDINGS, MANCHESTER, beg to recommend the above under-taking to the notice of their clients and others.

Full particulars can be had on application to either of their offices.

Royal School of Mines, Jermyn-street.

NOTICE.—ROYAL SCHOOL OF MINES, JERMYN STREET, LONDON.

The SESSION will BEGIN ON MONDAY, the 5th of OCTOBER. Prospects may be had on application.

King's College, London.

LECTURES on MINERALOGY and GEOLOGY at KING'S COLLEGE, LONDON, are given on Wednesday and Friday mornings, from Nine to Ten o'clock, by PROF. TENNANT, F.G.S. Those on MINERALOGY begin on the 9th October, and terminate at Christmas: fee, £2 2s. Those on GEOLOGY commence in January, and continue till June. A shorter course of LECTURES on MINERALOGY and GEOLOGY is delivered to Evening Classes, from Eight till Nine. These begin on the 15th October, and terminate at Easter: fee, £1 1s. 6d. Mr. TENNANT accompanies his students to the public institutions and to places of geological interest in the country: he gives PRIVATE INSTRUCTION at 149, STRAND, W.C.

Bristol Mining School.

THE COURSE OF INSTRUCTION embraces MATHEMATICS, THEORETICAL and APPLIED MECHANICS, EXPERIMENTAL PHYSICS, DESCRIPTIVE GEOMETRY, MACHINE DRAWING, BUILDING CONSTRUCTION, CHEMISTRY, GEOLOGY, and MINING. Surveying and Levelling are studied in the field and mine, the pupils plotting from their own work.

For further particulars, apply to the Head Master.

M R . RICHARD TREDDINICK, CONSULTING MINING AND RAILWAY ENGINEER, OFFERS his SERVICES in the SELECTION of SECURITIES and PROPERTIES to those DESIRIOUS of INVESTING CAPITAL at these times of commercial depression; but more especially as regards Mining and Railway Stocks and Shares. He would impress on all the desirability of obtaining correct data as they embark, as it frequently proves too late to retreat when engagements are entered into before advice is sought. Practical authorities may guard against disasters when applied to in time, but cannot be expected to counteract the effects of indiscreet operations when mischievous is already encountered. Consultation fee, One Guinea. Crown-court, Threadneedle-street, London, E.C.

THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

Shares. **Mines.** Paid. Last Pr. Business. Total dives. Per share. Last paid.

1500 Alderley Edge, c, Cheshire*.... 10 0 0. — .. 10 1 8. 0 10 0.. July 1868

200 Alderley Edge, t, c, St. Just.... 91 5 0. — .. 488 15. 0 5. 0 0.. May 1868

4000 Brookwood, c, Buckfastleigh .. 1 11 0. — .. 0 12 6. 0 2 6.. Aug. 1868

1000 Brooklyn, t, Cardigan*.... 12 0 0. — .. 10 1 0. 0 6 0.. Aug. 1868

5094 Bwlch Consols, s-l, Cardigan*.... 4 0 0. — .. 0 5 0. 0 0 0.. June 1868

4400 Cashwell, t, Cumberland*.... 2 10 0. — .. 0 3 0. 0 1 6.. Aug. 1868

916 Cargoll, s-l, Newlyn*.... 15 5 7. — .. 14 15 0. 0 10 0.. July 1868

509 Creegbrawse and Penketyl, t.... 2 5 0. — .. 2 5 0. 1 5 0.. April 1868

867 Cwm Erlin, t, Cardiganshire*.... 7 10 0. — .. 28 8 0. 0 15 0.. July 1868

122 Cwmystwith, t, Cardiganshire .. 60 0 0. — .. 383 10 0. 2 0 0.. Aug. 1868

280 Derwent Mines, s-l, Durham .. 300 0 0. — .. 177 0 0. 2 0 0.. July 1868

1024 Devon Gt. Consols, c, Tavistock*.... 49 0 400. — .. 1115 0. 0 6 0 0.. Sept. 1868

656 Ding Dong, t, Guisval*.... 49 14 6. — .. 0 10 0. 0 5 0.. Sept. 1868

358 Dolcoath, c, t, Camborne 3 6 0. — .. 0 13 0. 0 1 6.. Aug. 1868

6144 East Carnarvon, t, St. Cleer*.... 2 14 6. 3 1/4. 3 1/4. 0 2 0.. July 1868

300 East Darren, t, Cardigan*.... 32 0 0. — .. 160 10 0. 2 0 0.. July 1868

128 East Pool, t, c, Illogan .. 24 5 0. — .. 442 10 0. 7 10 0.. Sept. 1868

1006 East Wheal Lovell, t, Wendron .. 3 9 0. 7. 6 1/2. 4 1 6. 0 10 0.. May 1868

2800 Foxdale, t, Isle of Man*.... 25 0 0. — .. 1005 2 0. 2 0 0.. July 1868

4000 Frank Mills, t, Christow*.... 3 18 6. 1 3/4. 2 2 1/2. 0 2 0.. Sept. 1868

3000 Gawton, c, Tavistock*.... 3 10 0. — .. 0 3 0. 0 3 0.. Jan. 1868

1500 Great Laxey, t, Isle of Man*.... 4 0 0. 18 1/2. 17 1/2 18. 0 5 0.. Oct. 1868

5098 Great Wheal Vor, t, c, Helston*.... 40 0 0. 12. 11 12. 0 7 6.. Sept. 1868

124 Herodstool, t, near Illogan*.... 8 10 0. — .. 46 10 0. 1 10 0.. June 1868

1000 Hindington Down, c, Calstock*.... 5 10 0. — .. 0 10 0. 0 5 0.. April 1868

165 Levant, c, t, St. Just*.... 10 8 1. — .. 1000 2 0. 2 0 0.. July 1868

4000 Lisburne, t, Cardiganshire .. 18 15 0. — .. 509 0. 0 3 0.. July 1868

2000 Maes-y-Gwyn, Flint*.... 20 0 0. — .. 3 15 0. 0 15 0.. Mar. 1868

9000 Marke Valley, c, Cardigan*.... 4 10 0. 6. 7 1/2 7 1/2. 0 4 0.. July 1868

3000 Market Boundary, t, Wexford*.... 1 0 0. — .. 0 13 0. 0 3 0.. June 1868

1800 Miners Mining Co., Wexford*.... 25 0 0. 180. 175. 0 6 0.. Aug. 1868

20000 Mining Co. of Ireland, c, t, d., c.... 5 0 0. 15 1/2. 15 1/2. 0 6 0.. Aug. 1868

40000 Mwyndy Iron Ore*.... 3 5 0. — .. 9 p.c.t.. July 1868

900 Parrys Minces, Anglesey*.... 50 0. — .. 0 8 6. 0 2 0.. Mar. 1868

20000 Peasey, c, t, Illogan*.... 50 0. — .. 0 10 0.. April 1868

40000 Prince of Wales, t, Calstock*.... 0 12 0. 2 1/2. 418. 43s. 0 7 6.. Aug. 1868

1120 Providence, t, U. N. Leyland*.... 10 6 7. 23. 22 24. 0 8 5.. Sept. 1868